

# THE MINING AND METALLURGICAL JOURNAL.

FORMERLY THE PACIFIC COAST BULLION.

VOL. XVII., No. 1

LOS ANGELES, CAL., APRIL 1, 1897

PRICE, 10 CENTS

The Gold & Silver Extraction Co.  
OF AMERICA, LIMITED.



TRADE MARK  
CAPITAL  
\$1,000,000  
The Original  
Cyanide Process  
Simple  
Reliable  
Economical  
Gold Medal Column  
Mine Expedition

Mine Owners and others having Refractory  
and Low Grade Gold and Silver Ores and Tailings  
should have their material tested by

The MacArthur-Forrest Cyanide Process  
Samples assayed and fully reported upon. Par-  
ticulars upon application.

ADVISORY BOARD IN THE UNITED STATES  
Geo. A. Anderson, General Manager;  
Hugh Butler, Attorney; W. S. Ward;  
J. Stanley Muir, Technical Manager.

CALIFORNIA AND NEVADA AGENT,  
Bertram Hunt, 116 Sansome St., San Francisco

Office: McPhee Building, - Denver, Col.

THE EDWARD P. ALLIS COMPANY  
MANUFACTURERS OF  
Mining, Milling and Smelting Machinery

Crushers, Concentrators, Pumps, Compressors, Hoists, Boilers,  
Reliance Crushing Rolls, Reynolds Corliss Engines, &c.

Send for Catalogue.

MILWAUKEE, WIS.

## THE RUSSELL PROCESS

The Improved Method of Lixiviation  
for Free and Rebellious Silver and  
Gold Ores and Tailings, Either Raw  
or After Roasting. Send for New  
Publications Just Issued

The Russell Process Co. - Park City, Utah.



THE  
ROESSLER & HASSLACHER Chemical Co.

72 Pine St., New York

## CYANIDE

Peroxide of Sodium

Hypoaliphite of Soda

Chloride of Lime

Sulphide of Iron



Trade-Mark

And Other Chemicals for Mining Purposes.

THE CALIFORNIA

THE CELEBRATED  
HAMMERED STEEL Shoes and Dies  
Warranted Not to Clip Off or Batter Up. A HOME PRODUCTION

ALSO

Best Refined Cast Tool Steel, Well Bit Steel, Heavy and Light  
Iron and Steel Forgings of all Descriptions.

GEO. W. PENNINGTON & SONS, 218 and 220 Folsom street,  
SAN FRANCISCO, CAL.

## ADAMANTINE SHOES & DIES

AND

CHROME CAST STEEL  
Cams, Tappets, Bosses, Roll  
Shells and Crusher Plates.



Stamp Shoe



Stamp Cam

These castings are extensively used in all the Mining  
States and Territories of North and South America. Guar-  
anteed to prove better and cheaper than any others. Orders  
collected subject to above conditions. When ordering send  
sketch with exact dimensions. Send for Illustrated Circular.

CHROME STEEL WORKS,

Kent Ave. & Keap St., - BROOKLYN, N. Y.

## THE PELTON WATER WHEEL

Affords the most simple, economical  
and reliable power for all  
purposes.

6000 WHEELS NOW RUNNING

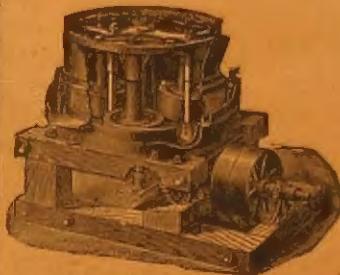
PELTON WATER WHEEL CO., Dept. B.  
121 Main St., San Francisco, Cal.

They give more value for the money  
than any other power appliance  
known. Catalogues upon  
application.

## PARKE & LACY COMPANY

21 and 23 FREMONT STREET, SAN FRANCISCO, CAL.

LICENSEE FOR THE MANUFACTURE AND SALE OF



## The Huntington Centrifugal Roller Quartz Mill

THE HUNTINGTON MILL is so well and  
favorably known among mining men throughout  
the world that any description of it would seem  
superfluous. They are in use in the United  
States, Canada, Mexico, Central and South  
America, Australia, China, Japan, and South  
Africa. In fact, wherever mines exist, and have  
given the best satisfaction of all quartz crushing  
mills.

The construction of this mill has lately been much improved and we claim it to be the  
CHEAPEST, MOST EFFICIENT, SIMPLEST, AND MOST DUR-  
ABLE MILL UPON THE MARKET.

← CATALOGUE UPON APPLICATION →

## Am. Zinc-Lead Smelter CANON CITY, COLORADO. NEW MEXICO AND ARIZONA SMELTER Hanover, Grant County, N. M.

Will buy all kinds of ores; specialty made of copper ores and those containing zinc. Low grade  
refractory ores desired. Write for prices to either smelter.

G. H. CURTIS, General Agent

P. H. BARTLETT, General Manager

Canon City, Colorado.

## Consolidated Kansas City Smelting & Refining Co.

BUYERS OF ALL CLASSES OF

## BULLION, MATTE, ORE - MILL PRODUCTS, GOLD & SILVER BARS

Smelting Works { Leadville, Colorado.  
Argentine, Texas.  
Argentine, Kansas.

REFINERIES: ARGENTINE KANSAS.

FOLLOWING CODES USED: At Argentine, Kansas.

A. B. C.  
Morning & Nell's  
and Bedford McNeill's.

Ore Purchasing Agencies

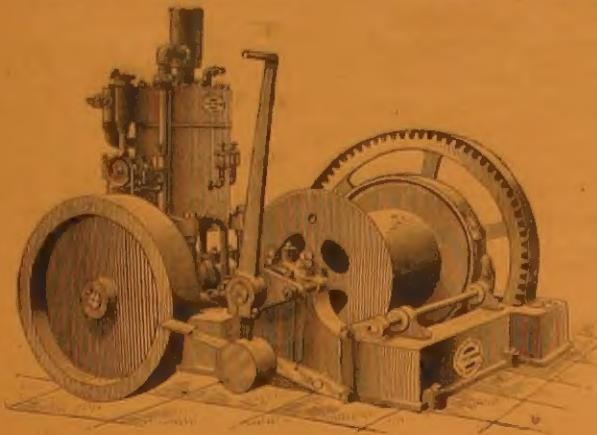
Spokane, Wash. Salt Lake, Utah  
Leadville, Colorado. Denver, Colorado.  
El Paso, Texas. Argentine, Kansas.  
Cripple Creek, Colorado.

**McDearmon & Co.**  
Asbestos Boiler & Steam Pipe Coverings  
Asbestos Cement for Boilers, drums, Heaters,  
Etc. Special facilities for supplying  
the mining trade.  
Pacific Coast Agent for H. W. John's Co's Asbestos  
Sheeted coverings.  
522 Sacramento Street, San Francisco, Cal.

**GOLD OR SILVER**  
can be crushed more economically in our  
**STEAM STAMP** mill  
or any other method. **DO YOU KNOW** that in  
the Gold operation, camporation, monthly reports,  
time spent in installing, **WE CAN SAVE YOU**  
**MONEY.** Prospectors and capitalists write  
**DATES IRON WORKS, CHICAGO.**

**J. B. TOMLINSON, M. E.**  
Prescott, Arizona,  
MINING PROPERTIES EXAMINED, APPRAISED AND REPORTED UPON  
— AND —  
Supervision taken of the development of properties  
and the operation of mines.

## “Union” Hoist



Union Gas or Oil Engine and Hoist Combined, on strong, iron base.

### No Fire No Steam No Boiler No Danger

TEN YEARS' EXPERIENCE. TWO THOUSAND ENGINES IN USE.

Started instantly. Compact, strong, simple, efficient, economical. Perfectly governed, so that oil is used only in proportion to the work done. No expense when idle.

Particularly Adapted to Mining in Localities Where  
Fuel and Water are Expensive.

Built in the following sizes: — 1 H.P., 4 H.P., 6 H.P., 8 H.P., 10 H.P., 15 H.P.,  
20 H.P., 30 H.P., 40 H.P.  
Send for Catalogue and state what H.P. required.

**Union Gas Engine Co.,**  
301 Howard Street, San Francisco, Cal.

—

MINING MACHINERY

METALLURGY

**Standard Iron Works**

## MINING MACHINERY

Castings in Iron and Brass, Shoes  
and Dies, Pumps, Engines,  
Boilers, Windmills.

Blacksmithing and Machine Work  
of Every Description.

Cor. 7th and L Sts., San Diego, Cal.

Advertise in THE JOURNAL.

L. BOOTH, MECHANICAL ENGINEER



AGENTS FOR  
The CHANDLER & TAYLOR Engine, the strongest  
and cheapest for mining purposes.

P. BOOTH, MINING ENGINEERS

## L. BOOTH & SONS

Engineers and Machinery Merchants  
We carry the best stock of power generating  
and transmission machinery in Southern  
California.

— GET THE —  
Hendy Ore Buckets and Cars  
the strongest and most durable made

338 North Main street  
Los Angeles, Cal.

WOODBURY CONCENTRATOR



No. 181 First St., San Francisco

## Miners' Assay Office

LOUIS SECKELS, MANAGER  
24 W. 2d, South St., Salt Lake City, Utah  
P. O. Box, 1316.  
Assay for Gold and Silver 75 Cents.  
Samples sent by mail or express will receive  
Prompt and Careful Attention.

The CONSOLIDATED PIPE CO.  
Of Los Angeles, Cal.

Have about 25,000 feet 7½  
inch inside measure  
Which they offer at lowest market prices.

\* \* \* Advertise in the JOURNAL \* \* \*

## Technical & Scientific Books

Including BOOKS ON MINING  
Chemistry, Metallurgy, Assaying,  
Electricity, Mechanics Trades,  
Science, &c., &c.

TOOLS and HARDWARE  
Workshop Machines operated by  
foot and steam power.

Novelties, New Tools and all recent  
Inventions

Send for Free Catalogue and Price List  
Books sold at Publishers' Prices, and de-  
livered free to any point in the  
United States or abroad.

Geo. Webb Alexander,  
401 MARKET STREET,  
SAN FRANCISCO, CAL.

PRACTICAL TREATISE ON COMPRESSED AIR MACHINERY. A useful book  
for mine owners and Superintendents and all  
engineers who are interested in Compressed Air  
and Compressed Air Transmission. Price \$4.00.  
For sale by

Rix Compressed Air Machinery Co.  
11 and 13 First Street, San Francisco, Cal.

ALSO DEALERS IN  
General Mining Machinery

\* \* \* Send for Latest Catalogue. \* \* \*



11 and 13 First Street, San Francisco, Cal.

MANUFACTURERS OF

Pneumatic Machinery of all kinds.  
Rock Drills.  
Air Compressors.  
Compressed Air Hoisting Engines.  
Stone Cutting and Carving Tools, driven by  
Compressed air.  
Compressed Air Machinery for quarrying stone.  
Compressed Air Pumps for both cold & hot air.  
Appliances for reheating compressed air.  
"Ferrite" Shoes and Dies.  
Projectile Steel Shoes and Dies.  
Guaranteed to be the most economical Shoe and Die  
on the market.

ALSO DEALERS IN

General Mining Machinery

\* \* \* Send for Latest Catalogue. \* \* \*

## ALPHABETICAL INDEX TO ADVERTISERS

A	F	L	R
Abbot, W. O.	Fairbanks, Morse & Co.	Lacy Mfg Co.	R&R Iron Wks.
Alexander, Geo. W.	Fowler, G. C.	Leffel & Co., James.	Rix Compressed Air Machinery Co.
Allis Co., E. P.	Fulton Eng. & Shipbuilding Wks.	Leonard & Ellis.	Rosenthal & Hasslacher Chemical Co.
Alphabetical Index to Advertisers.	Fulton Engine Works.	Lexow, Thee.	Russell Process Co.
Angels Iron Works.	Fraser & Chalmers.	Linfirth, James.	
Anti-Colorite Covering Co.	Fruit Ore Concentrators.	Llewellyn Iron Wks.	
Aubury, L. R.	Fruhling, Wm. A.	Lloyd, H. T.	
Austin Bros.		Loughran & Calkins.	Sanders & Jones.
American Zinc Lead Co.		L. A. Sewer Pipe Co.	S. F. Pioneer Screen Wks.
B	G	H	S
Bailey, A. A.	Garburt, R. C.	Gold & Silver Mkt. Co. of America.	Schaw, Ingram, Baicher & Co.
Baker Iron Works.	Gerritt & Co., W. T.	Gottfried, F.	Schillings & Sons, A.
Bent Mfg Co.	Gates Iron Works.	Grinwood, C. F.	Selby & L. Co.
Bl Metalic Assay Office.	Gold & Silver Mkt. Co. of America.	Gregory Jr., Wm.	Shepherd, Wheeler & Rhodes.
Birch & Co., W. H.	Gottfried, F.		Sou. Cal. R. R.
Booth & Sons, L.	Grinwood, C. F.		Standard Pipe & Steel Co.
Booth, Franklin.	Gregory Jr., Wm.		Star Boiler & Sheet Iron Works.
Booth & Co., C. B.			State Ore Sampling Works.
Bradley Pulverizer Co.			Stevens, A.
Braun & Co., P. W.			
Burlingame, R. E.			
C	H	I	T
Cagwin, A. S.	Hallawell, E. J.	Hendy Machine Wks., Joshua.	Taggart, J. P.
Cal. Prefrating S. Co.	Hammond Mfg. Co.	Hendy, Clarence.	Taylor & Co., John.
Cal. Wire Works.	Hanks, A. H.	Hoeger, Wm. H.	Templeton & Boyle.
Chrome Steel Works.	Harrington & King Per. Co.	Hoyt, Geo. F.	Townsend Bros.
Cobalt & Heselmeyer.	Hercules Gas Engine.		Triumph Electric Co.
Colorado Iron Works.	Hendy Machine Wks., Joshua.		Trux Mfg Co.
Commercial Pig Co.	Hercules Gas Engine.		
Cook, Fred R.	Hendy Machine Wks., Joshua.		
Collins Mfg Co., W. F.	Hercules Gas Engine.		
Consolidated Pipe Co.	Hendy Machine Wks., Joshua.		
Con K. C. S. & R. Co.	Hercules Gas Engine.		
Culver & Co., J. P.	Hendy Machine Wks., Joshua.		
D	I	K	U
Denniston, E. G.	Incorporated Mines.	Kempton, C. W.	Union Gas Engine Co.
Denver Fire Clay Co.	Ireland Jr., Wm.	Kern Co. Assay Office.	Union Hardware & Metal Co.
Denver Public Sump. Wks.		Kratzner, A.	Union Iron Wks., S. F.
Doub, D. M.		Krogh Mfg Co.	Union Iron Wks., L. A.
Donnellan, K.			
Ducommun, C.			
E	J	L	V
Eager & Co.	Jeffrey Mfg Co.	Kempton, C. W.	Van Der Nallen, A.
Endicott Eng. & Machinery Co.	Johannesburg Sump. Wks.	Kern Co. Assay Office.	Von Shultz & Low.
Endlich & Davis.	Johnson, F. M.	Kratzner, A.	Vulcan Iron Wks.
Eveleth & MacLymont.		Krogh Mfg Co.	
F	M	N	W
Fairbanks, Morse & Co.	Lacy Mfg Co.	Nelson Judson Drug Co.	Wade & Wade.
Fowler, G. C.	Leffel & Co., James.	Newman Gold Saver.	Want Ads.
Fulton Eng. & Shipbuilding Wks.	Leonard & Ellis.	Nolan & Smith.	Washburn & Moen Mfg Co.
Fulton Engine Works.	Lexow, Thee.	Oakland Iron Wks.	Western Forge & Rolling Mills.
Fruit Ore Concentrators.	Linfirth, James.	O' Bannion, J. C.	Wheatley, G.
Fruhling, Wm. A.	Llewellyn Iron Wks.	Oakland Iron Wks.	Wheeler, G.
G	O	P	X
	O' Bannion, J. C.	Pacific Metal Wks.	Wile, Rogers & Co.
		Pacific Mining Mfg Co.	Wilson, J. Howard.
		Pacific Sheet Metal Wks.	Winslow, J. C.
		Pacific Tank Co.	Woodbury Concentrator Co.
		Paraffine Paint Co.	
		Parke & Lucy Co.	
		Patton Water Wheel Co.	
		Pennington & Sons Co., Geo. W.	
		Peterson, W.	
		Pettet, A. J.	
		Follock, James A.	
		Price & Sons, Thos.	
		Paeble S. & R. Co.	
		Puget Sound Red. Co.	
H	P	Q	
I	Q	R	
J	R	S	
K	S	T	
L	T	U	
M	U	V	
N	V	W	
O	W	X	
P	X		
Q			
R			
S			
T			
U			
V			
W			
X			
Y			
Z			

## John Wigmore and Sons Co.,

## GENERAL MINING SUPPLIES

## HEAVY HARDWARE

## IRON AND STEEL

SOLE AGENTS FOR

## CANTON DRILL STEEL

John A. Roebling's Sons Co's  
WIRE CABLES.

## Giant Powder

117 to 123 S. LOS ANGELES ST.  
LOS ANGELES, CAL.

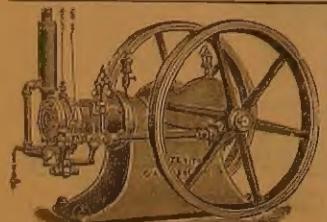
## The Modern Motor

THE WHITE & MIDDLETON  
Gas, Gasoline or Distillate Engine,

Manufactured by the White &amp; Middleton Engine Co.

This engine is not to be compared with other engines now upon the market. People who are using them say they are revolutions over other makes, always having perfect speed under varying loads and steadily maintained. It is not the case with engines using generators or carburetors) regardless of weather conditions. Engines of 5 H. P. give the same satisfaction as smaller ones, all above 15 H. P. are made self-starting, regardless of weather. It will do more work with less oil or gas than any engine made. Especially adapted for mining work or electric lighting; sold under guarantee. All wanting power for any purpose should not fail to investigate this engine. Highest testimonials from mining men. Also pumping machinery of all kinds.

Agent for Southern California and Arizona, WM. GREGORY, JR., Redlands, Cal.



## Zenith Gas &amp; Gasoline Engine

The Most Perfect Made,  
SIMPLE, NOISELESS, ECONOMICAL, SMOOTH RUNNING,  
AND EASY STARTING

WM. A. FRUHLING, Agt.

216 and 218 S. Los Angeles St., Los Angeles, Cal.

## WANTED

## Wanted!

A Chemist and Assayer now holding position in Mexico desires a change of position. A Spanish speaking country preferred. Also capable of assuming position of assistant superintendent of a small Lead-Silver blast furnace.

ADDRESS "U"

JOURNAL OFFICE,  
Stimson Block, Los Angeles, Cal.

## WANTED!

Position, by young mining engineer with Practical Experience in the Mining and Milling of Gold Ores. Understands Cyaniding.

Address "B" JOURNAL OFFICE,

Stimson Block, Los Angeles, Cal.

WANTED, position as Mine Foreman by first-class miner who is also capable Assayer, has had 14 years practical experience in underground mining in California. References if required.

Address

QUARTZ,

Mining Journal.

## C. W. KEMPTON

## MINING ENGINEER

Oro Blanco, Arizona

20 years experience in exploration, mining and milling, 10 years as superintendent and manager, Boston, New York, and Chicago references.

## G. WHEATLEY,

## Mines and Mining

CORRESPONDENCE SOLICITED

TUCSON. - - - ARIZONA

## BYRON JACKSON MACHINE WORKS

## 625 6th STREET

San Francisco. - - California

Jackson's Single-Valve Cross-Compound Steam Engines.

"Light Weight" Oil Motors,

"Whirlpool" Centrifugal Pumps,

"Light Weight" Horse Forks,

Feeders" for Threshing Machines,

"Eclipse" Stackers, and

"Acme" Hay Rakes.

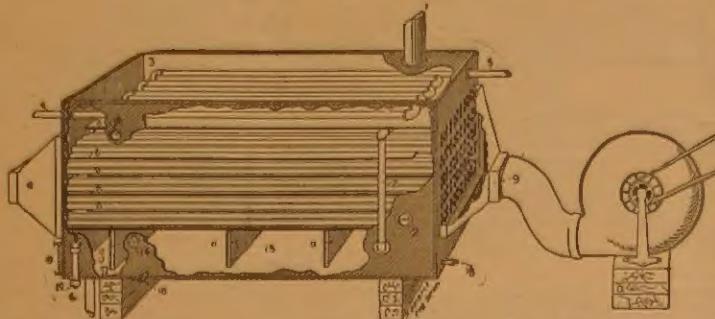
WRECKING PUMP AND STREAM ENGINE FOR  
30 FOOT LIFT.

Compound Pump 200 foot lift for Hydraulics Mining

**WHITE, ROGERS & CO.,**  
**Constructing Engineers and Millwrights**  
 No. 306 Pine Street, San Francisco, Cal.

We furnish the machinery and erect at the mines all descriptions of **Stamp Mills** for the treatment of gold and silver ores. **Hoisting and Pumping Machinery** operated by Steam, Water, or Electric Motors. **Cyanide, Chlorination and Leaching Works.** Complete Concentrating and Smelting Plants for dressing lead ores and smelting for copper and silver. **Improved Air Compressors and Drills.** **Wire Rope Tramways** for transporting ores, etc., etc. **Practical Working Plans and Specifications Provided for All Machinery Furnished or Structures Built By Us.**

**Kellers' New Improved Feed Water Heater, Purifier, Condenser, and Hot Air Blast Combined.**



Built entirely upon new mechanical lines to that of all other Heaters. 80 per cent of fuel saved, and Steam condensed saving nearly one half of Water Bill.

No compounds needed to keep boilers from scaling as all impurities are precipitated and lodged in the tank.

Feed water is superheated after it leaves the pump and goes to the boiler at boiling temperature without "back pressure" on engine or no charge for Device; the Thermometer and Back Pressure Gage registers results.

180 deg. of hot air forced out of device which can be utilized for drying or heating purposes or carried under the boiler furnaces as a force draft. The foul air can all be drawn out of mine with this same attachment. Where the air is not required leave off the Fan, it will not condense quite so fast, but other results will be the same. This Device is endorsed by practical Mechanics and the largest Smelters and Plants in the country. This is THE ONLY HEATER ENDORSED BY THE AMERICAN INSTITUTE OF MINING ENGINEERS. Send for Descriptive Catalogue.

Star Boiler, Sheet Iron and Feed Water Heater Works,  
 2166-76 FIFTEENTH STREET, DENVER, COLORADO

**THEODOR LEXOW**

105 Broadway New York

Importers of

**CARBONS**

—FOR—  
 DIAMOND DRILLS and all Mechanical Purposes

Henry Demmert

**J. HOWARD WILSON**

Assayer & Chemist

A Specialty Made of Umpire Work.

306 Santa Fe Ave., Pueblo, Colo.

**A. Kratzmer**

Iron and Brass Castings of all kinds, Shoes and Dies, Cams, Boxes, Tappets, Mortars, etc., etc., Complete.

**Stamp Mills**

of any size made and Sold at strictly

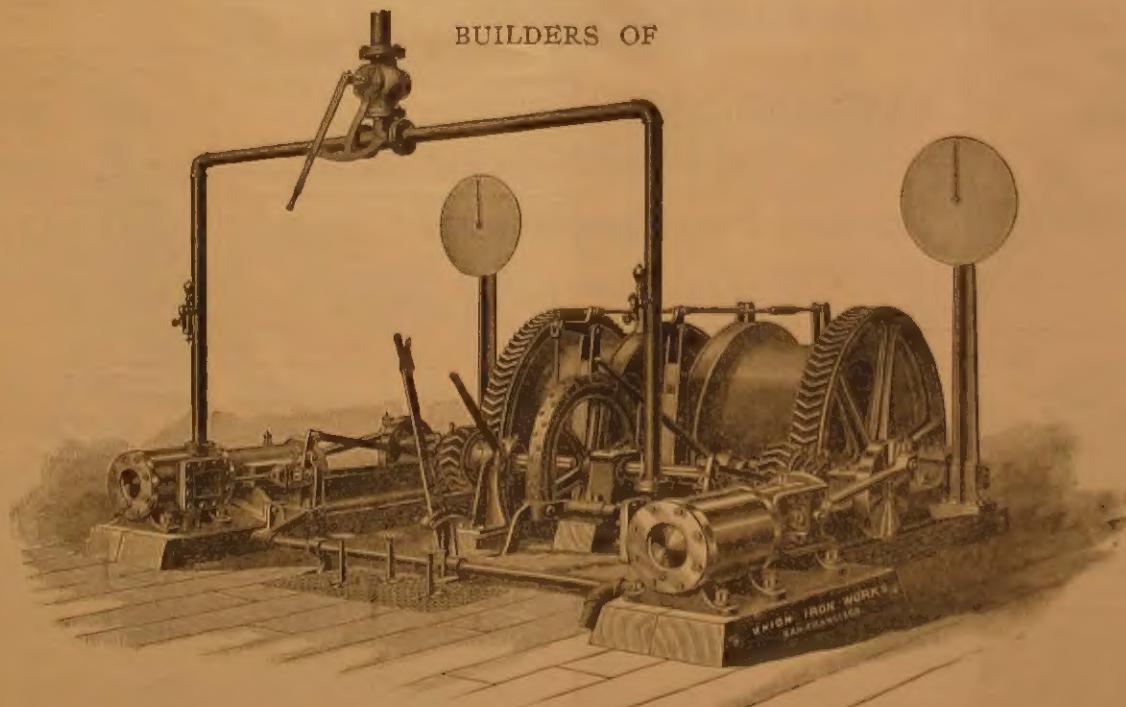
**San Francisco Prices.**

Correspondence Solicited.

BAKERSFIELD, CALIFORNIA.

**UNION IRON WORKS**

BUILDERS OF



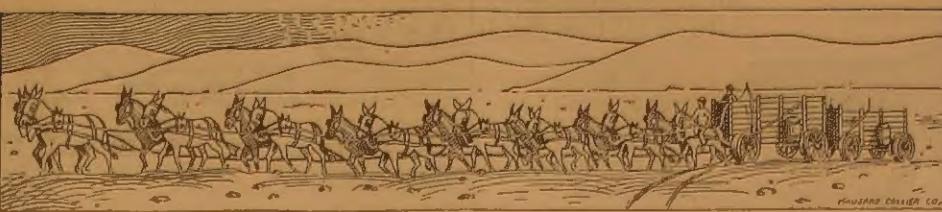
**Mining, Milling, Concentrating and Smelting Machinery**

222 MARKET STREET, SAN FRANCISCO, CAL.

SEND FOR NEW CATALOGUE

## Freighter

From Mojave, Kern County to the mines and all points in Kern and Inyo Counties.

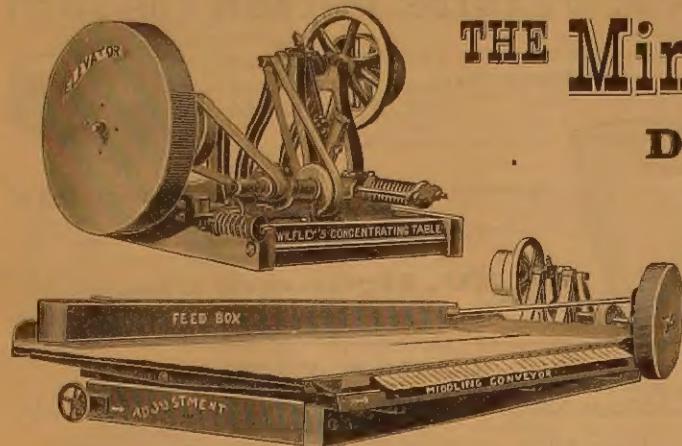


## All Goods

Consigned to my care will be promptly forwarded to destination.

## Neil McLean

Mojave, Kern County, Cal.



# THE Mine and Smelter Supply Co.

DENVER, COLORADO

ARE SOLE AGENTS FOR THE

## WILFLEY CONCENTRATOR

and claim for it BETTER work than any Concentrator made, with a capacity of from 15 to 25 tons per day of 24 hours. It is simplicity itself. No moving belts or intricate parts. Any one can learn to operate in an hour.

For confirmation of all of the above we refer to Henry Lowe, Puzzle Mine, Breckenridge, Colo., M. E. Smith Concentrator, Golden, Colo.; Mary Murphy Mine, St. Elmo, Colo.; W. E. Renshaw; Mayflower Mill, Idaho Springs, Colo.; H. E. Woods, Denver, Colo.; Standard Mill, Wallace, Idaho; Smuggler Mill, Aspen, Colo.; Smuggler Union Mill, Telluride, Colo.

BRECKENRIDGE, COLO., Dec. 1, 1895.

THE MINE AND SMELTER SUPPLY CO., Denver, Colo.  
GENTLEMEN.—You asked us what experience we have had with the Wilfley Table, and we would state that after trying a Woodbury, a Free Vaanners, a Johnson, a Embry and Electrical Process, Harts Jig and Buddies, we have found that the Wilfley Table is the only table that has given us satisfaction. We are using two tables, at a profit to our mill, where all other devices have proven a failure, and we can heartily recommend them to any intending purchasers. Yours very truly,

(Signed), R. DE BARNEVILLE, Supt.

## We also Handle the Huson Wire Tramway.

These Tables have displaced belt tables of almost every make, as is shown by letters in our possession.

## Assayers AND Chemists SUPPLIES

MANUFACTURERS OF

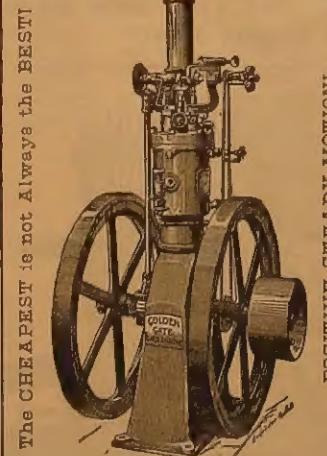
Crucibles,  
Scorifiers,  
Muffles,  
— AND —  
FIRE BRICK  
— AGENTS FOR —  
Baker & Adamson's Celebrated  
Acids and Chemicals  
— DEALERS IN —

Glassware,  
Porcelaine  
Goods, Etc.

— THE —  
Standard Fire Brick Company,  
Pueblo, Denver, Colo.

## THE GOLDEN GATE

Gas or Gasoline Engine  
Mining Hoists A Specialty



THE CHEAPEST is not Always the BEST!

MADE BY  
ADAM SCHILLING & SONS  
211 218 Main St., San Francisco,  
Send for Circulars and state Horse Power  
Required.

## THOUSANDS Now in Use Over the World



TRAUX PATENT IMPROVED  
Automatic Ore Cars.  
THE ARE THE BEST AND CHEAPEST.

Traux M'fg Co.



DENVER, COLORADO.

The Only Exclusive Ore Car Manufacturers in America. Send for Catalogue. All dealers in Mining Machinery have them.

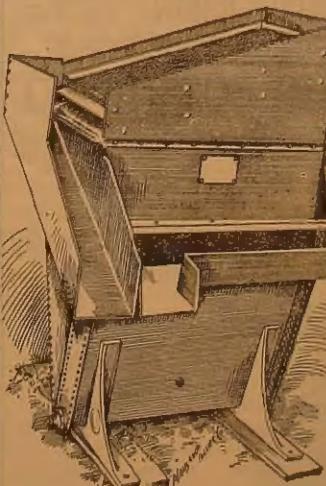
## The "Journal" Office

Is Located In the Stimson Block  
LOS ANGELES, CAL.

## The Newman Gold-Saving Machine.

(Patents Pending)

The Most Simple Amalgamating Process known that actually Saves all the gold. Can be used in hydraulic, river washing, or quartz mining.



Is not a Dry-Washer.  
Positively saves the Float  
Gold and fine Quick-silver  
NO EXTRA LABOR, NO MOTIVE POWER,  
NO EXTRA EXPENSE

R. DUFFULL, Manager.  
Offices, Room 205 Carrier Building

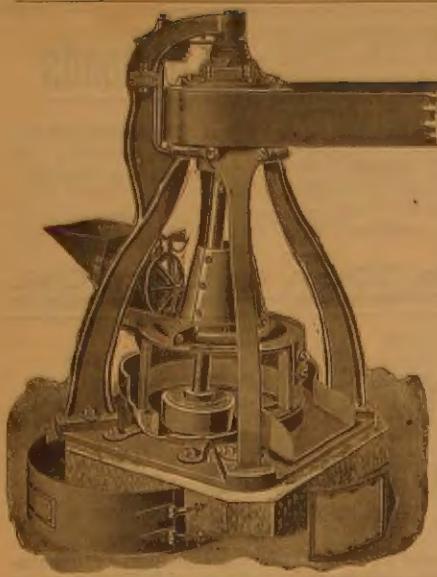
212 W. Third Street  
Los Angeles, Cal.

## THE S. S. MACHINERY CO.

Buy, Sell and Trade in All Kinds of SECOND-HAND  
Mining and Wood Working Machinery.

CORRESPONDENCE SOLICITED.  
OFFICE: 1529 Lawrence  
WORKS: Sixth and Market

DENVER, COLORADO  
TELEPHONE [Office, 120  
WORKS, 1284]



THE GRIFFIN MILL

The only Perfect Pulverizer Working both  
Wet or Dry  
Process

NO JOURNALS IN PULVERIZING CHAMBER.

Delivers a finished product. Will  
pulverize 1 to 2 tons per hour on Port  
land Cement, Quartz or ores depend-  
ing on hardness of material and firm-  
ness of product.

Manufactured and Sold by —

Bradley Pulverizer Co.,

92 STATE STREET,  
Boston, Mass.

Assayers',  
Miners' and  
Chemists' Supplies

Crucibles, Muffles,  
Scorifiers, Furnaces,  
Cupels, &c., &c.

C. P. CYANIDE POTASH (98-99 per cent)

Dioxide Sodium, Zinc Shavings,  
Borax Glass, Litharge,  
C. P. Test Lead

AND EVERYTHING REQUIRED BY

Assayers' Miners' & Chemists'

We invite Correspondence and solicit orders.

F. W. Braun & Co.,

401 to 407 N. Main St., Los Angeles

EAGAR & CO.

Assay Office and Sampling Works.

Assaying, Mill Tests, Cyanide Tests, Etc. Special Attention to work sent by Mail.  
No. 10 Stevenson Street, San Francisco, Cal.

Chas. P. Grimwood,

Mining Engineer and Metallurgist

Laboratory, 214 Pine Street,

SAN FRANCISCO, CAL.

WM. H. HOEGEE

MANUFACTURER OF

Oiled Clothing, Awnings, Tents, Sails, Tarpauline, Flags, Banners, and  
Camp Furniture. Tents and Canvas Floors for Rent.  
Jobber of Cotton Duck, Etc.

136 S. Main Street,

LOS ANGELES, CAL.

A SELF-EVIDENT  
FACT.

In the treatment of many low grade ores, the  
margin of profit is sometimes so small that  
great care and judgment is required in the se-  
lection of properly designed machines and  
appliances as well as in the arrangement of  
the same. The manufacture of

MINING MACHINERY

of every description is our specialty. Our new  
shops were specially designed for this purpose.  
Gates Rock and Ore Breakers  
have acquired a reputation for superiority  
world-wide in extent.

Crushing Rolls, Stamp Mills, Smelters, Concentrators,  
Pans, Settlers, Hoisting, Conveying and  
Pumping Machinery.

Complete Installations for all Methods of Treatment.

For Catalogues and further information, address

Gates Iron Works, 650 Elston Ave, Chicago, U.S.A.

New York  
136 Liberty St

London, E. C.  
72 & Queen Victoria St.

Butte, Mont.  
Silver Bow Block

City of Mexico  
Calle de Gante No. 3

**JEFFREY**

Roller, Steel and Special Chains  
FOR  
ELEVATING  
AND  
CONVEYING  
MACHINERY.  
FOR HANDLING MATERIAL OF ALL KINDS.

POWER TRANSMISSION  
MACHINERY.

COAL MINING MACHINERY.

Wire Cable  
Conveyors.  
For long and  
short distance  
conveying.

THE JEFFREY MFG. CO.  
Columbus, Ohio.

163 Washington St.  
NEW YORK.  
Send for Catalogue.

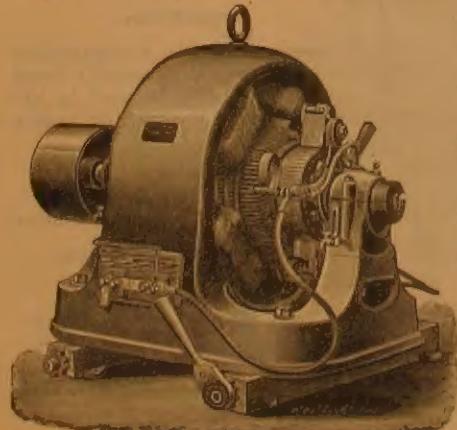
Read The JOURNAL.

**"HENDY" IMPROVED**

Triple Discharge Two-Stamp  
MILL  
Capacity six to ten tons per day  
PRICE, \$450.00

JOSHUA HENDY MACHINE WORKS  
38 to 44 Fremont St., San Francisco, Cal.

Agency TRIUMPH ELECTRIC CO.



CINCINNATI, OHIO

Generators,  
Motors  
Isolated Lighting  
Plants  
Electric Elevators  
and Pumps  
Water Wheels,  
Boilers & Engines

Write for Estimates.

122 W. Second Street  
LOS ANGELES, CAL.

THE  
**Mining & Metallurgical**  
 + JOURNAL +

Entered at the Post Office as Los Angeles, California,  
 as Second Class Mail Matter.

Vol. XVII. APRIL 1 No. 1

F. W. EDELSTEN, Editor.

LIONEL A. SHELDON,  
 Special Contributor.

ULRICH KNOCH, Publisher

OFFICE, Stimson Block, Los Angeles, Cal.

SUBSCRIPTION PRICE:

For United States, Mexico and Canada	\$2.50 per annum
" " "	1.25 six months
All other countries in the postal union	3.50 per annum
" " "	1.75 six months

ISSUED SEMI-MONTHLY

SPECIAL REPRESENTATIVES:

The Journal is kept on file at the following places where contracts for advertising can be made:  
 San Francisco, Cal.—E. C. Drake, 64 and 65 Merchants Exchange.  
 Salt Lake, Utah.—Art Advertising Supply Co., 60 West and South Street.  
 Denver, Colorado—James A. Tedford, 404 and 405 Ernest & Cranmer Block.  
 Chicago, Ill.—Newbegin & Co., Room 261 Monadnock Block.  
 New York City—Wm. Edelsten, Jr., 166 Broadway.  
 City of Mexico, Mexico—O. H. M. Agramonte, 17 Cinco De Mayo.

ADVERTISING RATES FURNISHED ON APPLICATION.

CONSISTENT TO THE LAST.

Grover Cleveland's administration, from start to finish, was favorable to foreign rather than American interests. A few hours before he retired from office, he vetoed the immigration bill. The mass of the American people favor enlarged restrictions of foreign immigration much greater than those embraced in the bill just vetoed. But he defied public sentiment on this subject, the same as he has done on nearly all other subjects. The country is overrun with idle men, but Mr. Cleveland would allow the number to increase through the importation of ignorant pauper laborers. He yielded to the demands of the steamship companies, the great majority of which are foreign. If consistency is a jewel, then Cleveland's administration is a jewel, as it has been consistently hostile to the best interests of America.

THE FUTURE POLITICAL ISSUE.

In the late presidential campaign there were two main questions at issue—one was the tariff and the other silver coinage.

McKinley, by the convention which nominated him, was committed to the doctrine of a protective tariff, to the gold standard and against silver coinage, except of subsidiary pieces.

Bryan was nominated by a convention which did not favor a protective tariff, and as he was a member of the committee which framed the Wilson Bill and spoke and voted for it, the country understood that he and his supporters were opposed to the protective policy, but he was a representative of free and unlimited silver coinage in his own person, and the convention which nominated or endorsed him declared for it.

The protective tariff policy carried with the aid of the gold democrats, and also the gold standard.

Thousands of men who believe in silver coinage and are opposed to goldism voted for McKinley because they were protectionists, and believed that a tariff policy, such as the

republicans and McKinley declared for, was the first that should be disposed of, as both could not be enacted at the same time. If there had been a candidate committed to protection and free silver coinage there is little doubt that he would have swept the country. A large majority of the American people on a direct issue is in favor of the protective principle in tariff legislation.

In his message to Congress at the beginning of the present session the President confined himself to the tariff question. As the republicans have a large majority in the House of Representatives no legislation is likely to be enacted except upon that subject, certainly none of great importance. There seems to be no determined purpose on the part of the opposition to prevent or even embarrass the passage of a reasonable tariff law. Therefore we may assume that some law on that subject will be enacted before the present session comes to an end, and it is probable that it will be of such a character that there will be no attempt to disturb it for several years to any material extent.

Every change of duties affects values and disturbs business. The country has become tired of the continued agitation of the tariff question, and desires that the law that may be passed shall remain in force long enough for business to become adjusted to it, and to make a thorough test of its merits.

We may therefore look for a clearing of the decks for a battle over the money question as a single and certain issue. On that issue party lines will go to pieces, and men will take sides according to their convictions. It will be well if it shall so turn out, for all great questions should be passed upon without the intervention of other and inferior issues. Let us have the money question by itself, and let it be wisely and finally settled. We have no doubt that in such case free silver coinage will be one of the features of whatever system may be adopted. The question of silver coinage cannot be removed from politics except through an agreement with leading countries in Europe to the effect that silver shall be made an international measure of value as well as gold and on a satisfactory ratio, or by passing a free coinage law independently of foreign nations.

THE INTERNATIONAL CONFERENCE.

Cleveland has gone out of office without appointing the commissioners to the International Bimetallic Conference. It is perhaps fortunate for the country that he did not make the appointments, for it is certain that he would have selected the most decided friends of the single gold standard. Perhaps President McKinley will do the same thing.

Such appointments would be farcical and absurd, and not much less so would be the appointment of a mixed commission, part goldite and part for the double standard. If it is desired that a conference shall produce any result favorable to silver coinage, it should be of the men who are earnestly in favor of the bimetallic standard.

When the United States presents a solid front in favor of the free coinage of the two metals, she may have some weight, but none whatever when divided in opinions and demands. It is very doubtful whether McKinley will have the stamina, in the face and eyes of Wall street, to send to the conference out and out free silver coiners. To send a mixed commission will produce a result not different from those of the efforts of the three

previous conferences. Such a commission will not be better than none at all.

When this country assumes the attitude of demanding, instead of begging, something may be accomplished with foreign nations; but the best thing to do is for this country to start alone in the coinage of silver, and make use of the coin in our own domestic affairs. We are comparatively isolated and independent, while commercial affairs in Europe are involved and complex.

MONEY FOR THE FEW.

Gold is not democratic, it is too scarce for the many, and is sufficient to supply a few only. From the earliest time it has been possessed by kings, satraps and the nabobs. Croesus gathered it to himself in all his dominions, and it was controlled by the Roman triumvirates and by the Caesars. In these modern days, it is in the hands of the Rothschilds, and the wealthy bankers of Europe and America. It will always be concentrated in the hands of the opulent classes, so long as it is made the ultimate measure of value, and no other medium of exchange is deemed good unless exchangeable in gold. Under the prevailing financial policy, and in consequence of its scarcity, gold can never become the money of the people. It will remain with the few, and be made the instrument of oppression to the many.

In everything useful, except money, abundance is desired by all people, and in regard to it the masses favor a plentiful quantity, while comparatively a small percentage favor paucity, and it is a curious fact that in an intelligent country like this the few who are benefited by a small volume of money are able to control the many who are plundered by it.

MR. MCKINLEY'S

suggestion of a commission to devise a monetary system is novel and not complimentary to Congress. It is equivalent to saying the senators and representatives in aggregation are incompetent to deal with that question intelligently. A commission to be composed of business men, for it is fair to suppose that it will be composed of none others, is about the worst thing for the masses that can be done. Indeed, it is nothing short of a proposition to take the money question out of the hands of the people and place it under control of an oligarchy. Business men know less of the necessities of the people than any other class, and any system devised by such a commission in all probability would be narrow and in the interest of capital. The partialities and interests of business men generally are in that direction.

It will hardly be denied that the people are in the habit of sending to Congress incompetents, not only upon the money question, but upon many others, and they must not expect wise legislation until they make better selection of agents. It is a snub to the people, however, to submit the question as to what money system the country shall have to the control of men in whose selection they have no part nor lot.

Some of Mr. McKinley's expressions on the money question are at best ambiguous, and, worse than that, for, by giving them the signification justified by the language, they are positively dangerous. He says "until the condition is realized, which the parity between gold and silver springs from, and is supported by the relative values of the two metals. The value of silver already coined,

and of that which may hereafter be coined, must be kept constantly at par with gold by every resource at our command."

We submit that the language is broad enough to justify the statement that it means the possessor of the silver dollar may go to the treasury and that it be exchanged for the gold dollar. It is true that it is not the law now; but if the principle stated is sound, the law should be changed so as to permit that very thing to be done. The goldites denounce the silver dollar coin as a fifty cent dollar, and, on Mr. McKinley's theory, it can only be made a hundred cent dollar by the government giving a gold dollar for it, and pocket the loss. Such a view is not more extravagant than the construction that has been given to the Sherman law of 1890, by which the certificates or notes issued on the bullion purchased shall be redeemed with gold.

## CORRESPONDENCE

### CALIFORNIA.

BANNING, CAL., March 25, '97.

EDITOR JOURNAL:—Messrs. Ryan Bros., of Lost Horse mine, have the mortars of their new 10-stamp mill on the ground. It is their intention to pump water to the mine and have the mill right on the mine.

The Desert Queen mill is running regularly on good ore.

Eagle Cliff mine is down 80 feet. They have 15 tons of sorted ore, going \$125 a ton, ready to ship to mill.

A. G. Tingman has hauled in two loads of lumber to timber the well at Hexahedron mine.

They are talking of putting in a cyanide plant, to work tailings, at Tingman & Holland's mill.

John Lang is sinking on his new discovery, near Lost Horse mine. It is showing up well.

Woodworth Bros. are getting very rich ore out of the Lots mine from the 160-foot level.

DESERT CORRESPONDENT.

### RIVERSIDE COUNTY.

SALTON, March 28, '97.

EDITOR JOURNAL:—This has been called a "Burro puncher's country," and "Stringer country," until we think it about time to protest. By "this country," I have especial reference to that portion of the Colorado desert lying north and east of Salton, and including the Dos Palmas, Canyon Springs, Chuckwalla, Eagle, Phalen, Coxcomb, Maria and Ironwood Mountain ranges, comprising a territory of more than 3600 square miles, and a mineral territory at that.

We do not want a boom camp out here, in the common acceptance of that term; we could have it if we did. I do not know of a working miner in the locality that is desirous of selling his claim on the basis of the surface croppings or a ten-foot hole. Every man here is able to "grub" himself, and, if funds run short, a ton or two of ore shipped to a smelter makes everything easy.

As a rule, the few men in these mountains are philosophic, accept things as they come without complaint, and have a happy faculty of attending to their own business—which is the development of their properties as rapidly as possible within their means. They do not go wild over a hundred dollar prospect in a horn spoon, neither do they hunt for a specimen rock for assay and for telegraphic purposes. They are not accustomed to giving

other camps a "black eye," because they have no locations there. Old miners in general are not in the habit of doing that, especially men who have injured their eyes years ago in looking for gold in rock that contained none. It must be a new crop of miners, many of whom do most of their prospecting on Spring street, in Los Angeles. We have had them out here, some of them. Some who would hold us awe-struck about the camp fire, while they talked earnestly of trachyte, diorite, primary granite, quartzite, and nobody knows what besides, yet they hardly knew ore from a brick, country rock from quartz, and would not recognize a "contact" if they met it in the trail. They stay until they get tired, and then they go "inside" and call this a "stringer country." Humph! Is it? Let us see. I will mention only a few of the most well known locally, they never having had any newspaper notoriety.

Take the Somerville mine, owned by E. G. Fish & Son and Barker, of the Banning Land and Town Company. This mine is in the Dos Palmas mountains and is a well defined lode, with granite foot wall and slate and porphyry hanging wall, developed by 450 feet of tunneling, the lower tunnel cutting the lode at a depth of 300 feet and running along it for 250 feet; pay ore from four to seven feet wide, running from \$40 up into the hundreds per ton. Nice little "stringer" Fish & Son think so, and are milling ore in their own mill at Dos Palmas, where there is an abundance of water going to waste.

Four miles east on the same belt, and in the vicinity of Canyon Springs are several locations on the contact, veins from two to twelve feet, carrying gold, silver, copper and galena, from \$30 up.

Further up the desert, on the west slope of the Chucawallas, near Mill Camp or Hensch's Springs, Sterling Company have twenty or more locations, on veins ranging from eighteen inches and three feet to an undeveloped width, so large that they merge into immense deposits instead of lodes, some as low as \$10 or \$12, others over \$100.

Two miles from there, Messrs. Davis, Temple and Dr. Keller are developing the "Surprise," another "stringer," from three to fourteen feet wide, from which \$28 and \$30 assays have been made.

Farther on, Frank Coffey, Ritchie & Mealie have a three-foot stringer, showing \$50 rock, at the bottom of a 75 foot shaft, and, strange for the desert, water has driven them out, but a pump will overcome it.

From over Corn Springs way, I have no reports save that Frank Wells and Matt Whalen have been shipping \$200 ore.

"Around the point of the mountain, on the east slope of the Chucawallas, Messrs. Corbett and Ritchie have three "stringers," in a 5x7 shaft on the Rattlesnake and have taken out some \$200 ore.

One mile south, Messrs. L. Crose and A. Jacobs are driving a 100-foot shaft down on the Boulder mine, and have taken out \$50 ore from a three foot vein.

Then comes the Granite and San Diego groups on the Comstock Jr. lode. The Granite group is owned by Mrs. Ella Hensch, A. S. White, Mr. Masters, John E. Hall and Jacob Berg of Riverside. There is more work done on the Granite mine than in any in this part of the desert, about 700 feet in shaft and drifts. On the 100 foot level, they have cross cut the lode, and found it 40 feet from wall to wall. At a depth of 150 feet in the north drift, they ran into a face of copper stained ore across the entire face of the drift.

Then, they started to drift west, and cut into another five foot face of ore; whichever way they drift they strike ore. They put down a winze 86 feet in one of the drifts, and had assays of \$159 from ore from the bottom. Although they have not stopped a pound of ore, they have 600 tons on the dump, some of which is shipping rock, and when the statement is made that it costs \$40 per ton to take ore from the dump here and get it into bullion, some idea of the value of the ore may be estimated. Its milling value is estimated at that or more. They shipped one carload to a smelter, and the returns are reported as \$139.10 gold per ton. Assays have run away up in the hundreds of dollars from this property.

Next on the south is the San Diego group, owned by J. S. Crawford and E. E. Bowles, the original location on this lode. As in the Granite, the San Diego shows a ledge formation on the surface of immense width, and the lode can be traced by rich croppings for nearly 1200 feet. A mill test made of this ore by L. E. Aubury, of San Diego, gave returns of \$111.95 per ton. About 250 feet of work has been done on this property. The foot wall shows about three feet of rich ore, and the hanging wall about four feet. One sample from the latter assayed \$162 per ton. A tunnel is now being driven in along the hanging wall. It is in 140 feet, and they have a depth of about 200 feet. They will soon drive a cross cut the entire width of the lode, cutting several stratas of high grade quartz that crop on the surface. Oh yes, great country for "stringers" this!

Two miles farther south is the Gold King, from which a car load of ore has been shipped to Denver, yielding handsome returns. Some of the ore has been milled at the Boulder Company's mill, eight miles east. Some assays went nearly \$400. E. C. Sweetzer has this mine bonded of the owner, John Johnson.

Farther south, there are other promising locations on which but little work has been done, but show high grade ore, principally the Burro's Back, in which P. W. McGrath, of Los Angeles, is the principal owner. He is also interested in the Tiger's Foot, Burro Bob and Burro Tom, with other interests in the Eagles mentioned later.

On south, near Tank Springs, Col. C. C. Lane and Sons have a location that merits considerable development. They have a shaft down about 35 feet, and have taken out ore that assayed over \$150, nearly a car load of which has been shipped.

Over in the Eagles they don't say much, and haven't much time for visiting, but are going down at a satisfactory rate. There are the Blackbird and Kangaroo, in which P. W. McGrath is a large owner, associated with Justice Tallant and John Whitpenn, of Indio. Under the superintendence of Mr. Whitpenn a 100 foot shaft is being sunk on this property, and it shows up well, two feet or more of a solid hematite and copper stained ore, with free gold. Parties stand ready to take this property, but, like many others, the owners are not selling prospects. They prefer to sell what they know they have—good mines.

In the same vicinity, Mike Conway, Jack Barnizer and Charley Robertson have a group of promising claims, including the Seven-and-One-Half and Ninety-Nine. They are now driving a tunnel to cut a five foot ledge, from which they have shipped ore to San Francisco, netting very handsome returns. Mike is an Old Comstocker, Robertson a Colorado and Arizona miner and Jack has grown up with the district. They are

thorough miners, and their property must show up well to hold them.

In the same range, Messrs. Converse and Jordan have a group of claims near Buzzard Spring. Work on the Buzzard shows a lode of over eight feet, with some ore paying over \$100.

Up in the west side of the Eagles, Henry and Gus Adams are taking shipping ore from a large well defined lode that is improving rapidly.

Then there is the Beech & Moore property. It can hardly be described; but an incline shaft of about 30 degrees, 80 feet deep, is reported to be all in the ledge, and cross cut back, at last reports, was 14 feet in solid ore all the way. Much of this is being shipped to San Francisco. It is said the owners refused to bond it for \$250,000.

Prominence must also be given to the find of Mr. Angus Brown. He has lately brought in some magnificent specimens of native copper, running high in gold and black oxide of copper. He will not give its exact locality, but is over northeast, and is from one to eight feet—a bonanza. P. W. McGrath is associated with him in the find. But everybody hopes Hank will make a million out of it, for he drove stage across this desert, with a rifle between his knees, when most of us were learning our A, B, C's.

The Boulder Mining Company has dug a well on the flat between the Eagles and Chuckawallas, and at 70 feet have an abundance of water for all purposes. The Company has purchased and moved to the site the Bryan mill, formerly near Twenty-nine Palms, but as yet but little custom work has been done, owing to the Company having no concentrator.

There are many other strong lodes being developed farther north in the Eagles, including the camp of Mr. Coon, of Riverside, but that is in your Cottonwood correspondent's territory.

#### CHUCKAWALLA MINER.

##### The Picacho Gold Mines.

##### SAN DIEGO COUNTY.

(Special Correspondent.)

March 23, '97.

**EDITOR JOURNAL:**—The Picacho Mining district, lying on the Colorado River, 20 miles north of Yuma, has been for the last 36 years noted for its production of gold, during which time it has produced and sent out more than \$10,000,000. It is also true that more than two-thirds of this was taken from the placers alone. It is also true that even this was taken from and along the veins of ore which produce it, as the gold was in its rough state, just as it left the quartz. In this mineral belt, the veins range from 20 to 200 feet in width, with an average value of \$5 per ton, as shown in the careful and rigid examinations made by such men as William A. Farish and Thomas Bell, two of the most noted mining engineers and experts in the world.

Mr. Farish, upon his first visit to Picacho, after most careful work for 22 days, assisted by 12 men, found that in a thousand samples which he took from different mines at Picacho, the average was \$7.20 per ton. Upon his return with Mr. Bell a year later, in going over the same ground, and much that was new, taking his samples with the same care, he found that the average was \$9 per ton. Mr. Bell's samples ran still higher. The average taken from the Jaynes group of four mines ran better than \$8 per ton. These

mines have been prospected to a depth of 236 feet, and for more than 600 feet in length. Along the level of that depth, the testimony taken from 12 well known mining men, who spent more or less time in the Jaynes mill in milling the ore from the different mines at Picacho states that their experience convinces them that the average of all the ores in this mineral belt is from \$5 to \$8 per ton. In the White Gold Basin in the same district, the average holds nearly as good, in fact if not better. The Pleiades group of 5 mines has a body of ore 80 feet wide and 1100 feet in length that averages \$5; adjoining this is a belt 20 feet wide that runs \$6, next to this another 20 feet that runs \$7, and next to this another 12 feet that averages \$8, and adjoining this another 81 feet that averages \$5. These belts adjoining in the same great vein have been prospected for 1100 feet in length.

In the Cantua canyon, these bodies of ore have a face of from 30 to 50 feet in height and going back the 100 feet, they rise to over 250 feet, showing simply an immense quarrying proposition, with ore in sight for at least a hundred years, even if worked in a 100-stamp mill. The White Gold group, on the same vein, shows a body of ore 100 feet wide and 1500 feet in length that averages \$7. The Capella group, still farther east on the same vein shows a body of ore 300 feet wide, which averages \$6.36 per ton, of this, 22 feet averages \$7.82, 12 feet \$9.13, 26 feet \$12.61, 16 feet \$16.62, and 12 feet \$19.67. In the \$6.36 averages, no sample was included that showed a value of more than \$10 per ton. The Alfonzo group, on the adjoining vein, shows a body of ore 100 feet wide that averages better than \$5 per ton. What this vein may yet show when further prospected no one can tell, but so far as it has been prospected, it is second to none in the White Gold Basin.

The Golden Dream Company's mines in the same basin show a width of 20 to 100 feet, with an average in more than 10,000 tests made of over \$6 per ton. The Company at present is taking ore from nine different places from four of its mines, the average of which is better than \$10 per ton.

The Gold Cup, lying to the west of these, shows an average in three average tests, taken for 200 feet in width, of more than \$20 per ton.

Thus far reference has been made to only six of the thirty or more groups in the Picacho district. That the others of those not yet tested are as good is clear from the fact that upon the surface the indications and prospects thus far taken have been better. What further developments may show no one can tell. Thus far in the opening up of the mines during the past years not a failure has been made. The Golden Dream mill is running on ore that averages \$10 per ton.

The Pleiades mill, of 30 tons daily capacity, is nearly ready to run; two other mills of the same capacity are arranged for and will soon be constructed. Arrangements have also been made for the putting up of two 100-stamp mills, one of these on the Dorsey property, and the other on the Gold Cup. There is no section in the state where so much work has been done with as fine prospects as that at Picacho, and the results are far better than the most sanguine expectations of those interested.

There never has been a time in the history of mining upon the Colorado River when so much interest centered on the great veins of free milling gold ore as that which now characterizes the movements being made in the

Picacho and other districts along this "Nile of the West." With its warm, dry climate, and its great river navigable the entire year, Picacho is coming to the front as one of, if not the best and most important mining center upon the Pacific Coast. The best mining men in the west have become interested, after having visited the mines and most carefully investigating the value of the ore, and all the conditions of mining and milling, and they agree in the one opinion that Picacho has no equal in the west, even if has in the world—its bodies of ore, in extent and value, exceeding that of any other section now known.

PICACHO.

##### SAN BERNARDINO COUNTY.

##### Macedonia.

**EDITOR JOURNAL:**—We are still pushing development work on the Columbia mine. We have one shaft down 75 feet, where we are drifting and now taking out rich ore; another shaft, 30 feet deep, and a cross-cut tunnel, 130 feet, with 35 feet of drift on the ledge. This tunnel taps the ledge somewhat over 100 feet deep. So far, we have not had a break in the ledge. We have now over 200 tons of ore on the dump, averaging \$55 per ton, and 10 tons of first class ore. Comparing this ore with the lot we shipped some time ago we think it would go \$200 per ton. We have now on the Columbia mine over \$50,000 worth of ore in sight, and if we had a mill here, we could make some money every month. The Occidental, Golden West and Good Hope are showing bodies of ore. We have not done any development work on these claims, only assessment work.

Mr. Dressel and Mr. Wimbough recently located a group of mines—the Golden Eagle, Lucky Boy and Desert King. They have one shaft down 40 feet, 2½ foot ledge. The ore is getting richer going down, and they have now 25 tons of ore on the dump, some of it very rich.

E. BAUMERT.

##### COLORADO.

BOULDER, CO., March 20th, 1897.

**EDITOR JOURNAL:**—The following is a few notes on mining in this county that may be of interest to your readers.

In the Utica mine Ward, an ore body 14 feet wide or thick has been opened in the 700 foot level and in the main shaft. The ore is a sulphide of much better quality than that heretofore found in the upper levels, eight feet of solid smelting ore, that runs \$100 per ton and six feet of good milling dirt. This mine is undoubtedly the best paying proposition in Boulder county, and has paid big dividends for the past six years, stimulating mining in the great camp of Ward, and giving an impetus to the industry that no other property has ever done.

Charley Davis owns the Victoria mine at Summerville, which furnishes employment to 40 miners. The property is a silver mine, and has been fearfully gophered by those working it before Charley got hold of it, and after spending thousands of dollars in putting the mine in a safe condition to work it, he has begun to realize dividends of considerable amount, and expects these monthly returns to increase regularly during the summer months. It must be a pretty good silver mine to pay for working at the present price of silver, and still more strange that this rich silver mine should be found in the center of magnificent gold telluride properties; yet, such is a fact.

The Inter-Ocean mine at Sunshine produces superb ore. Some of the choice pieces are over half-pure gold, that would make elegant cabinet specimens, and are often sold for such purposes. This mine is also operated by leasers, who are making good money when they reach the ore chute; but dead work has to be done before reaching the magnificent ore streak which contains so much pure gold.

The American mine at Sunshine has opened out wonderfully, and all the levels are full of good shipping ore.

Five tons of mineral were brought down from the Buena mine, Jamestown, last week, which yielded 56 ounces gold to the ton, while a small quantity of first class was sold for \$5 per pound.

REGULAR.

#### NEVADA.

TUSCARORA, NEV., March 15, '97.

EDITOR JOURNAL:—They have made a rich strike in the Dexter in this camp, and are now milling ore that goes from \$1,000 to \$5,000 per ton. They ran 43 sacks, March 14th, of 70 lbs. each, and it took 80 lbs. of quicksilver to amalgamate the gold.

W. A. KELLY.

#### Miscellaneous Mining News.

##### ARIZONA.

The Mars Mining company has recorded a mill site in the Silver Belt district, near Tucson.

H. M. Abbott is rushing things on his X. Y. Z. copper claim which adjoins the United Verde mine.

Messrs. Cook & Fisher have let a contract to sink a 100 foot shaft on their new discovery near Yuma.

Numerous copper locations have been made in the Eagle Tail mountains southwest of Prescott about 100 miles.

According to Prof. Blandy the copper production in Arizona up to the present time numbers 63,323,798 pounds,

C. D. Lane, the well known millionaire mining man, has an expert investigating a number of properties in the Dragoons in Cochise county.

The agent of the Supai Indians at the Wallopai reservation says that prospectors are opening up rich and extensive gold mines in Supai canon.

Twenty stamps are now running in the Boom mine south of Casa Grande. A large body of ore was found in the lower workings in this mine which averages \$16 per ton.

Cochise county is rapidly forging to the front as the great gold producing county in the treasure territory. The Pearce mines alone are taking out \$450,000 every month.

The Fortuna, located about sixteen miles from Yuma in a southeasterly direction, continues to show up well. Shipments of bullion aggregating \$100,000 are made almost every month.

The Maudie mining claims owned by James F. Faull have been purchased by the proprietors of the United Globe mines. The same company has purchased of W. T. McNelly his interest in the McGinty claim for \$1,200.

The Shedd group is being worked by M. Meudenhall and Howard Banes, who at the depth of ten feet found a body of sulphide ore, and indications all point to a large deposit of this ore in a body. An attempt will be made to open it up soon. The proprietors sent several tons of the ore to the smelter and were much encouraged by the results.—*Phoenix Republican*.

Onyx has begun to arrive in Phoenix from the big mines fifty miles north of there. The 21st ult. an eight-horse team with two big wagons came in. B. Heyman has been busy for some time placing machinery for cutting and polishing, and in a few days a full-fledged onyx factory will be running on a large scale.

The Mohawk Mining Co., whose property is located near Mammoth, are putting in an addition of ten stamps to the twenty stamp mill they now have

in operation. They are now crushing about forty tons of rock per day, and when they get the ten additional stamps in working order, the capacity of the mill will be about 15 tons per day greater.

The five stamp mill of the Gold King mine near Prescott is kept pounding away on good ore from the mine. There are three shafts on the property, one 140 feet, one 180 feet and another 100 feet deep, showing ore which runs from \$16 to \$20 per ton.

M. E. Grover and others filed notice March 25th, of the location of the Cumberland, Defender, Surplus, Mountain View, Transit and Surprise mining claims in the Eagle Eye district, near Phoenix.

In cross cutting in the Oro mine at Oro Blanco, a ledge of free milling gold rock was run into. The lowest assay taken therefrom was \$12 and the highest \$115. The ledge is considered by mining men to be bonanza in itself. It is strong, well defined, high grade and free milling. Supt. Gould, under whose direction the discovery was made, is naturally quite jubilant over the results. Aside from this, however, the Oro and Julie camp was under the superintendence of Mr. Gould, on a paying basis and the discovery of the ledge in question makes it doubly so.

Three shafts are working in the Black Warrior, near Globe, and have the main shaft down 300 feet in solid ore. A double steam hoist has lately been put on by Messrs. James A. Fleming, Dr. Ford and others of Phoenix.

Both the Old Dominion Copper Mining and Smelting Company and the United Globe Mines are making their regular output of copper and are pushing work in the mines. The United Globe expects soon to put in large hoisting works at the Hoosier shaft, which will greatly aid development work and the raising of ore, present facilities being inadequate.

##### Pima County News.

A carload of machinery for the Mohawk mines is on the road.

The copper jacket for the Rosemont is nearing completion at the shops of Gardner, Worthen & Goss.

The Baxter mines have sent in a large shipment of high grade copper ore to the smelter, which averages 27 per cent.

J. Scott has had sampled a number of tons of ore from his Twin Peak mines, which averages over 25 per cent. copper.

"Liberty" Clark is working his lead mines for all they are worth. The last car load shipped brought him over \$4,000.

Gardner, Worthen & Goss have just shipped a well boring and pumping plant to the Campana Mining company.

It is reported that the recent rich strike made in the Mohawk mine is near the line and on the same ledge as the Mammoth.

The DuQuesne mining and reduction company has bought a 100-horse power and a 90-horse power hoist for their mines.

H. E. Bane shipped several tons of ore from the Mineral District to the smelter. He reports the mines in that district looking promising.

Manager Frances, of the Tucson Smelting company, has returned from the Silver Bell district, where he has been examining copper properties.

Work has been resumed on the Saginaw under the management of Capt. Burgess. In a short time these high grade properties will be worked on a scale commensurate with their value.

H. T. Fisher, of the Sterling Mill & Mining Co., has gone to Buckhorn Basin to operate the new mill of the Buckhorn Mining Co. there. This company is well equipped, and have just completed their hoisting works, mill, company houses, etc.

Professor Penrose is quoted as saying that the Pearce mine during the last year paid for itself three times over.

Among the claims in Dos Cabasas which give promise and are worthy of note are those of Raum and Howard, Cooper & Herrick, Baasey Bros., Meares, Bain, Steward, DeLong, Noble, Porter, Scow, White Bros., Miller, Billings, Emericay and numerous others all of which give promise of abundant rewards for judicious introduction of suitable machinery. The claims of Casey Bros. are most prominent by reason of being developed and sufficient showing has been made to demonstrate the extent and wealth of the belt and justly invite the attention of the capital. Some promising copper prospects are also to be found along the highest ridge of the range, those of Cooper

& Herrick giving evidence of untold wealth which but awaits capital to develop and machinery to smelt the red metal.

##### The "King of Arizona."

A party of the leading mining men of the country last week visited the "King of Arizona," Eichelberger's great strike in Yuma county, at which is now Camp Gleason, and all were of the opinion that it is the greatest strike of the century. The party was composed of C. D. Lane of Angels Camp, California, and owner of the Yuma County bonanza, La Fortuna; John H. Gay, Jr., of San Diego; Jesse R. Grant, of San Diego, son of Ulysses S. Grant; W. S. Stratton, the bonanza king of Cripple Creek; Augustus House of Colorado Springs; Epes Randolph of Tucson, and others.

Gleason & Eichelberger have received several large offers for their property. Several big mining men are after the new bonanza and it is simply a question of who will do the best, unless the fortunate possessors decide to keep their property and develop it themselves.

A great many prospectors are scouring the district in the vicinity of the King of Arizona, and valuable finds are reported, though no other claim has been discovered which can compare in richness with the strike of Eichelberger.

K. Barrett has sold the Nancy Hanks claim, in Black Rock district, near Prescott, to C. J. Hall, for \$5,000.

The Congress mine is now opened up to a depth of 1,700 feet. A 1,200-foot tunnel was completed a short time since which extends entirely through the mountain. The work was done under the direction of W. F. Staunton, the superintendent, who is also a practical engineer. A 650-foot uprise was connected with a winze in the mine. The company's 40-stamp mill pounds away on ore day and night, and development work in the mine progresses also. A portion of the ore is sufficiently rich to bear shipment without crushing and concentrating. After the tailings have been treated by the cyanide process, it is stated that the highest assay obtained from them is 30 cents per ton, showing the success with which the ore is worked. There are over 400 men on the pay roll.

Major Fechet, superintendent of the Old Glory mine, at Oro Blanco, returned to camp last week. The mine has been temporarily closed down pending repairs on the big reservoir and the putting in of a big cyanide plant. This will be consummated about May 1, when work will again commence.

Messrs. N. A. Gilman and E. R. Hooker are interested in a mine situated seven miles due west of Pearce. The ore has the appearance of being identical in character with the Pearce ore. They are having some development work done and hope to uncover a bonanza.

It is reported that another mining deal is about to be consummated at Copper Flat. Capitalists and experts are there examining the gold property belonging to Ignacio Campbell, George Hormeyer and others. Prospects look well for a sale.

Ben Sweninger, who recently purchased the Contreras copper mine, left Wickenburg last week, fully equipped with men and supplies to commence the work of development on the mine. He proposes to sink to the depth of two hundred feet or more, and ship the ore taken from the shaft to the Pueblo or El Paso smelters. A carload of this rich copper glance ore will no doubt more than pay for the sinking of the two hundred feet.

The Gold Bug mine in the Black Rock district still maintains its output of rich ore, and to further prove it, the ledge will be cross cut in one or more places this week.

The Gem, a new gold discovery near the famous Silver King mine, has recently been bonded by Thos. B. Phiby, from J. W. Woolf, for one year, from Jan. 1, 1897.

The Bullard mine, 30 miles west of Congress Junction, is about to change hands. Some Chicago parties will probably purchase the property.

#### CALIFORNIA.

##### BUTTE COUNTY.

A rich deposit of gold-bearing rock was developed a few days ago in Butte county by a Mr. Jackson of Chico, on property owned by V. Pomerat of Colton. The development is one of the richest in appearance that has ever been found in the state. The specimens broken from the rock look as if they were half gold. Mr. G. H. Evans took a sample of the rock to assay, and, although it was by no means a

large piece, yet there was between \$15 and \$16 worth of gold in it. Mr. Jackson has a working bond upon the mine. A blast was recently put in the shaft and where the fresh rock was broken it looked as if the whole bottom was covered with glittering metal.

## INYO COUNTY.

## The Panamint Country.

From the *Bishop Register* we take the following: Ballarat, the new town in Panamint valley is about three-fourths of a mile north of Post Office Spring, on the wash from Pleasant canyon.

To the north of Ballarat about twelve miles in Tuber canyon, some good prospects have been found, and it was reported that one of these claims had been sold to San Francisco parties for \$7,500.

There are about 150 people in the vicinity of Ballarat, mostly prospecting. Others are coming every day. The outlook is that there will be 500 people in the neighborhood within a month. Hay is selling at \$2.50 per 100, grain the same, eggs 35 cents. Ballarat is about 90 miles from Mohave and 70 miles from Keeler. The road from Keeler is in fairly good condition. In Shepherds canyon there are some short turns for a big team and some loose rock, but this canyon road could be made good with little expense.

## RIVERSIDE COUNTY.

## Perris Notes.

The Good Hope mine has proved again that it is a paying proposition. It produced a brick weighing \$11,000 the other day, on a two weeks' run. The new pay streak in the bottom of the level is a bonanza for Mr. Sigafus.

The Santa Rosa is in difficulties again. There is some dispute among the stockholders, the presumable object of which is to squeeze out the small fry, and so the mine is declared "worked out." The men have received no pay for two and one-half months, and the kicking going on out there is something tremendous. A number of liens have been placed against the mine, together with Hook Bros' attachment for \$7300, and the Oil Company's for a large sum. The mine is a paying proposition, for the Santa Rosa has regularly shipped her \$500 per week in times past. The trouble seems to be in the management wanting everything in sight.

The Alice has had a big run and is preparing for another. Experts are deciding the best way to treat the refractory but rich ore of the Alice.

The Southern Pacific is going to gobble up all the mines in section 23, township 6, range 4 west, unless the hard-working miners keep wide awake. The policy of the company is to claim the lands as agricultural land and ask for a patent. If no protest is entered within sixty days the patent is given, and the miner is ousted. He, perhaps, has been working away and has heard nothing about it. The only remedy lies in watching everything that goes on at the Land Office.

A lot of new claims are being opened up down in the canyon south of Perris. That section contains some good mineral.

Work is progressing on the Widow's Mite, owned by Joe Knowley, out east of the Jumbo. The ore is different from anything in camp, carrying a considerable per cent of copper, while traces of silver are found in the assays. Gold, however, predominates. —*Riverside Enterprise*.

At the Ellis mine, in the Menifee district, a ledge six feet wide, assaying \$25 and \$30 to the ton, has lately been uncovered, and a fine quantity of ore is in sight.

## Virginia Dale District.

The new Dodge mill has just been completed on the Virginia Dale property. It is forty tons capacity per day, and is a favorite at the north end of the state, where the ore is similar in composition to that taken from the Virginia Dale. This mine has now three shifts working, of about forty men.

The North Star Mining and Milling company has a force of men at work sinking a shaft and doing general development work in the shape of tunnels, preparatory to the setting up of their new mill. They have a small mill which will soon start up to handle a little custom work, but the company is preparing to put in a large mill shortly.

The Desert Mining and Milling company at Twenty-nine Palms is putting in a Tremain two stamp mill, which has a capacity of a five stamp mill.

The White Star company has a tunnel 1300 feet in length, which is over 800 feet below the surface, running through a two and a half foot ledge of ore that is very rich.

The Little Pet, owned by Hurley, Bryan & McKeith, is being developed as fast as pick and powder can do it. A sample sent in by the above parties with Col. G. W. Sweesy, assayed \$4,028 per ton.

Colonel Sweesy and W. H. Hurley have sold the Noble Grand. The new purchasers are sinking a 50-foot shaft on it. At present writing the ledge is looking magnificent.

The Baird-Lingo company is sinking a 60-foot shaft on the Ranger, on ore that runs \$119 to the ton. The Ranger is an extention of the Leoti, and that it is a good property goes without saying.

The "Little Jack," owned by Pendegrist, Kinucan & Kelly, has in present workings a three-foot ledge which carries \$700 by five mill tests.

The promoters of the town site at Lyon's Well met and decided to name the town "Dale City." The postoffice, store, saloon, restaurant, feed stable, and blacksmith shop will be in operation in two weeks. In fact, a mining town, wide open, is on its feet for the Virginia Dale district.

## SAN BERNARDINO COUNTY.

## Great Green Lead Strike.

One of the old-time mines, when Holcomb Valley was a populous mining camp that polled several hundred votes, was the Green Lead, a gold producing ledge that was run by Montijo and other Mexicans, with results that they kept as far as possible to themselves, in order to throw off suspicion as to its value. J. J. Stephens came in Tuesday from the mine, bringing in a fine specimen of ore that he placed on exhibition at the Chamber of Commerce, as a sample of what the lessees of the mine, Messrs. Dickey & Simmons are now taking out.

The mine is now owned by Dick Garvey of Los Angeles, and the efforts of the present lessees have been investigating the interior of the mine as left by the former workers. There is a tunnel, 400 feet in length, that runs directly into the mountain, from which there is a lateral 150 feet in length, and from the end of that the shaft has been sunk about 60 feet. The debris has all been cleared away through the whole extent of the former work, and at the bottom of the shaft they find a two and a half-foot ledge of ore that will run \$200 to the ton. From this spot the sample left at the Chamber of Commerce rooms was taken.

The lessees have a ten-stamp mill, and as soon as Mr. Stephens returns the mill will be started on this fine ore. This is the center of a number of good claims, and this discovery will give Holcomb Valley a start that may bring back to it the former days of successful mining. —*San Bernardino Sun*.

## SAN DIEGO COUNTY.

The Defiance mining district has been organized by the miners in the San Mateo canyon, in the extreme northwestern corner of San Diego county. The new district contains about thirty-six square miles of territory, and is expected to become a good camp. Some of the most promising claims are now having a great deal of work put on them.

The London Exploration Co., of California, is reported to have bonded the Golden Cross mine at Hedges.

The *Yuma Sun* says the mines of the Golden Cross Mining company at Hedges are reported sold. The report has not been completely authenticated by those who knew all about it. The price stated is \$1,500,000, and the purchasers are a syndicate of English capitalists, who will develop the mines on a much larger scale. The mines are at present looking better than they have looked for years, and new ore bodies are being continually found. A body of ore was encountered in the Cross mine this week of greater extent and richness than has ever been found in that mine before.

## SANTA BARBARA COUNTY.

The Consolidated Asphaltum Co., of Los Angeles, has consolidated with the Santa Maria Asphaltum Co., of Santa Barbara, to purchase 300 acres of land in San Luis Obispo and Santa Barbara Counties, and have agreed to pay \$4,000 cash on delivery of contract and \$11,000 before Oct. 18, 1897.

## TOULUME COUNTY.

Some rich rock was taken out this week from the Fleming mine near Campo Seco.

The Leap Year has struck a fine streak of pay gravel, which gets better with every car-load.

Sinking and general development goes on in every shaft in the Golden Rule, while the mine in general has a healthy, prosperous looking future.

Kiesters, Furry and Perez, have begun a new shaft, the old one being constantly flooded with water. They have taken out some fine quartz the past month.

The Preston hill back of Jamestown is being prospected by a number parties. A great deal of gold has been extracted from these premises.

The Trio mine is at present doing nothing but some tunnel drifting for surface chutes. The main shaft is down 135 feet and the contractors are driving it deeper every shift. The rock had been breaking easier the early part of the week, but is reported tightening up again.

A mine on Hog Mountain, which has been christened the Santa Margarita, will be prospected as soon as the weather permits by Jessie Manjesta and Joe Aud. It shows a strong, well-defined three foot ledge in metallic slate, with a six inch porphyry gouge on the hanging. Returns from assays give a good percentage of gold.

Sinking on the Rappahanock has passed the 600 foot mark. When the depth attained amounts 680 feet, crosscutting and drifting will be commenced on the 600, the extra 30 feet being for a sump. In the bottom of the shaft a 35 foot vein of good rock shows up with very little water to contend with. Superintendent R. Chute, one of the principal owners, is directing operations, and will undoubtedly ere long develop the Rappahanock into a big output property.

The main shaft on the Rawhide is being driven down as far as powder and steel can do it towards the 1100, although sinking will not be discontinued until the 1300 is reached. Crosscutting, drifting and stoping on the 900 and 1000 levels goes on every shift in the 30 foot vein of standard rock. The forty stamps pound out the regular amount of yellow stuff daily. One of the big chlorinating furnaces which has been closed some time for lack of fuel started up again this week, and the remaining furnace will be fired up between now and the 15th. Captain Nevil will soon have his mine again going full handed, which, together with wood-choppers and teamsters will mean that some 200 men will be on the Rawhide pay-roll. —*Union-Democrat*.

## COLORADO.

## San Juan County.

Two Italians named Baptiste and Marco are working a claim in Maggie gulch near the Aggie mine at Silverton through a 235-foot tunnel and have about eight inches of \$50 ore in sight.

The Senator mine, north Lookout mountain, Alda Hoffman, Strayer Bros., and George Croft, owners, has been developed to the extent of about 175 feet of work, consisting principally of tunnels. The mineral, which was struck a week or so since, consists of gray copper, rich in both gold and silver. The width of the streak is 13 inches. One of the proprietors is in Silverton from Durango for the purpose of examining the property.

The Parnell mine at Ophir, John Lonergan, Miss Eliza Lonergan and Mrs. Gainey, owners, has been disposed of on a two years' lease and bond to Robert Neely, the consideration being \$10,000. In the stipulation the mine is to be worked continuously for the above mentioned period and a 16-stamp mill, now standing at Ophir, is to be added to the property.

## San Miguel County.

The tunnel has been driven on the vein of the Ophir, Middle Basin, for the purpose of cutting the Montana vein at a depth of several hundred feet, is in 500 feet, and going ahead eight feet every twenty-four hours. Machine drills are used, and three shifts of men are employed under the superintendence of Frank Everett. From the most reliable information obtainable the tunnel will be 1700 or 1800 feet in length on reaching its destination.

The mill tunnel crosscut of the Tom Boy is in over 1800 feet and is being driven ahead several feet a day with machine drills by Karn Bros., who have the contract for driving the same. According to surveys less than 300 feet now remain to be bored to intersect the Tom Boy vein 250 feet below the main level of the upper workings.

Shipments from the Belle-Champion, Saw-Pit were resumed about the middle of last week, and unless something unforeseen happens they will continue for an indefinite period. General Manager McKay says about four cars a week will be sent out at the beginning, but he expects to increase the

number to a car a day inside of a month. There has been scarcely any mineral shipped from the Belle-Champion for more than a year past, pending the completion of a crosscut tunnel through which to handle the product and save the expense of hoisting it up an incline shaft, and there are considerable quantities of ore blocked out. A gravity tramway was recently laid in the last 246 feet of the shaft, driven on an incline, and it is now ready for operation. The vein of this property is from four to five feet in thickness and runs from \$40 to \$60 per ton in gold and silver, the values being about equally divided in the two metals. The manager estimates that there are 2000 tons of ore in sight, ready to break down for shipment.—*Daily Mining Record.*

#### Cripple Creek Notes.

The Gold Coin company shipped last week 920 tons of ore, which is expected to return an average value of \$35 per ton. This makes an income for the week of \$31,000.

The Witherspoon lease on a block of the Lindsay ground made its first shipment Monday, the 22nd of March, consisting of two cars. Of this one lot, 10 tons will run about \$75 per ton and the remaining twelve tons about \$26. The second grade was sent to the mill.

A 100-ton shipment went out from the Dolly Varden of the Enterprise company during last week. All of the returns have not been received yet, but 61 tons contain gross values of \$85, and net values after paying freight and treatment charges of \$70.70 a ton.

During the past week the Work company shipped two cars of ore from the workings on the Morning Glory. One of the cars contained high grade ore which averaged about \$60 per ton and the other car consisted of 30 tons of \$20 ore. Other shipments were made by lessees.

Between 25 and 30 tons of smelting ore were shipped by the Moon Anchorage company last week. Of late the grade of ore has had a value of about four ounces in gold to the ton and it seems likely that this will run about the same. Besides the smelting ore some 75 tons of low grade, of an average value of about \$35 per ton were also sent out from the same property.

Returns have been received on the last shipments sent out from the Dante. The 23 tons which were sent to the Metallic Extraction company returned \$27 per ton and 19½ tons which the lessees sent to the Taylor and Brunton sampler returned \$43.90 per ton.

Three carloads of ore shipped from the Pharmacist will return the company a very handsome amount. The best grade is expected to average six or seven ounces to the ton and the balance will run from \$40 to \$60 per ton. This is one of the best shipments that has ever gone out from the Pharmacist and it will break all previous records.—*Mail.*

#### Dolores County.

The shipment of five tons of ore made last week by Parshall and Waggoner from their Enterprise lease to the Omaha and Grant smelter at Durango, gave tares of 5½ ounces gold and nearly 500 ounces silver per ton.

#### Gilpin County.

Last week the following returns from ore sold to the State Sampling Works were received from the Golden Wedge lode:

Weight.	Gold, oz.	Silver, oz.	Copper, per cent.	Price, Total
6120	9.80	18.07	19.37	\$214.34 \$668.02
6255	8.50	4.19	2.93	50.68 211.72
<b>Total.</b> \$867.92				

This represents the labor of four miners for four weeks. Messrs. Rosch and McKay have nine tons of ore out ready for shipment to the smelters, which is considered of a better quality than the above.

#### El Paso County.

The Pike's Peak ore shipments since the commencement of the month has been as follows: Two and one half tons of ore worth \$46 per ton; 22 tons at \$240 per ton; 20 tons at \$60 per ton; 22 tons at \$40 per ton and 16 tons worth \$30 a ton, making an output of 82½ tons with a valuation of \$10,555 for the two weeks' work with a force of 40 workmen.

The new strike of the Olsen and Shellhorn sublease on shaft No. 3 of the Light has placed the property at the head of the procession for honors as a shipper and from the present outlook the mine will be a formidable rival of the Victor, Independence or Holland groups in the way of output and richness of ore de-

posits. In opening a cut about 12 feet from the shaft at a depth of 170 feet from the surface, a vein of ore four feet wide was found which gives assays all the way from \$200 to \$700 to the ton. These are assay values only but conservative mining men place the value of the entire four feet of ore at from \$160 to \$400 a ton. The ore is a brown quartz and has veins of talc which are also very rich. About 10 tons of the ore is now sacked and ready for shipment.

#### Boulder County

John O'Toole of Gallatin, Mo., has purchased of Andy Olsen and Oscar Carlson the Honest John claim, adjoining the Modoc on the northeast. The purchase price is said to be in the neighborhood of \$2,000. The claim presents a good showing. The vein as opened up in the 15-foot shaft is several feet wide, and of honeycombed quartz. It carries a pay streak from 6 to 10 inches wide, samples from which average in value \$19 in gold. Mr. O'Toole at once set a shaft of men at work sinking on the property, and proposes to stay right here and make a mine of the claim. He is backed by a company of Kansas City and Gallatin men.

A new discovery of ore made on Left Hand Creek, Boulder county, has created a good deal of surprise among old miners familiar with the ores of that district. All of the mines in that vicinity have been considered as exclusively gold bearing, and the ores are generally telluride in character. In the claim from which this ore was taken, however, at a depth of 82 feet, a vein of clear white quartz was uncovered which carries gray copper and galena, running 173 ounces in silver and \$11 in gold. The solid formation has not been reached yet, and it is thought the property will gain in value with depth.

#### LOWER CALIFORNIA.

(Extracts from Lower California.)

##### Punta Banda Lead Mine

Directly across the bay from Ensenada, well under the point, a lead mine was discovered some months ago which is attracting considerable attention. It is the property of Mr. T. L. McCarthy, and recent development work has led the owners to believe that they are possessed of a very valuable mine. The vein of galena varies in width anywhere from eight to thirty feet and is well defined. The ore assays on an average 68 per cent. lead, 23 ounces in silver and \$6.00 in gold, with a trace of copper. Mr. W. W. Ferral recently came from Idaho and has been making an examination of the mine and is satisfied that there is a very extensive body of this ore. Its proximity to the bay makes it specially valuable, as the ore is easy of access, and the cost of loading it on vessels would be almost insignificant.

##### Activity at the Agua Dulce.

Seventy men are now employed by the Fortuna Mining Company at the Agua Dulce, the ten-stamp mill is running day and night, and double shifts are working in the Abandonada and Tesoro shafts. The middle of last month Manager Lombard returned from San Diego, via Ensenada, to the mines, and was accompanied by Mr. B. L. Harding and Colonel Boynton of New York, both of whom are interested in the company. Nearly a year has past since Mr. Harding last visited the property, which he scarcely recognized, so great has been the development work in that period.

##### Alamo Notes.

It is understood that Mr. Joe Peterson, who has been in the employ of Messrs. Davis and Hartzell as superintendent of the Viznaga mine since April, 1895, has resigned, and will be succeeded by Mr. Church. The Viznaga company intend putting some twenty men to work on the Centipede mine.

The Montezuma still continues to furnish some good ore. It is the general opinion that Messrs. Howard and Griffin have a very valuable property.

Joe Guyette has been showing some very rich ore from a new find in the Alamo. Some of the specimens were remarkably large and heavy in free gold.

J. M. Gonzalez will mill some good ore from the Never Give Up shortly, and Tom Churchill is hard at work on the IXL.

On the Aurora mine some twenty men are employed at present, and the mill will start up in a few days on good ore.

Placer mining has revived somewhat since the rain and snow storms of the past week.

#### MEXICO.

##### Sonora

Pedro Negro has bonded to European capitalists for £25,000 the Bonancito mine. He is also negotiating the sale to a syndicate of European capitalists of La Patria and La Republica mines, two very promising properties about three miles east from La Colada, in the State of Sonora. The price set is \$50,000.

A company of French capitalists have organized under the name of "Compania Minera de San Pedro de Altar" with headquarters at Cabroca, Sonora. They are now constructing buildings for offices at that place and it is stated that they will build a railroad to their mines which are located eighteen miles from Cabroca. They will also erect a smelter and foundry.

A bond has been taken on the Bastilla mine, adjoining the Prietas mine at Minas Prietas, Sonora, which mine has already yielded millions in gold since 1880. There is said to be every reason to expect that in sinking the Bastilla shaft a few hundred feet the same rich ore will be encountered as has been found in the Colorado and Prietas, owing to the regular dip of these great veins to the north, and the extensive outcrops of the same veins which are visible upon the Bastilla. The development of an ample water supply for this district under a concession recently granted, makes it possible now to open these new mines and others which could not be worked heretofore. This will bring an added degree of prosperity to this already wonderful camp.

##### Nuevo Leon.

Report comes from Monterey that a deal has been effected embracing the consolidation of the Carbonite, Trinidad and Aztec silver-lead mines, and the sale of the controlling interest to a local syndicate. The newly elected officers are: Francisco Armendariz, president; Thomas Mendrichaga, treasurer; Adolfo Zambrano, secretary. The new management will begin the construction of a system of aerial wires and cables to bring the ores from the several workings to a central point at the base of the mountain for transportation over a short surface tramway to the Mexican National Railroad, thence to Monterey smelters, six miles distant. Competent mining engineers report over 100,000 tons of ore in sight. Besides silver, the ore carries gold, lime and iron in combination, and is said to contain less than 1 per cent. of silica or other insoluble matter. For several weeks past Leon Signoret, representative of the Bank of London and Mexico, has been endeavoring to organize a new smelter company to operate in Monterey. On being advised of the Aztec combination he became associated with the syndicate, and now states that the necessary capital, \$1,200,000, has been subscribed, and that the construction of the smelter will be carried on vigorously.

##### Chihuahua Notes.

Mr. E. L. Stillson of the Santo Domingo mine has bought out the interest of Mr. Garner in the new mine discovered by Mr. Thomas Williams adjoining the veta "Concepcion" at La Bufa. They have shipped out about 1,700 ounces of silver of high grade reduced in a Mexican "vasa" and everything indicates that the property will be of immense value. The last conductor from Batopilas brought in the visible proofs of Mr. Williams' working.

Mr. Arthur Shepherd, who is managing the sale of the "Mines of La Bufa" near Batopilas, and in which he is half owner, secured information by the last Batopilas mail that Mr. S. Dredick, who is exploring the property for himself and partner, Mr. James W. Taylor, to whom the property is bonded until March 20, has shown up magnificent results, gold being found in quantity, and in several cases native and visible to the eye at a number of points opened up for development. Mr. Shepherd is to be congratulated on the fulfillment of all his prognostications as to this property which he discovered, and for two years worked assiduously with arnatas before it was brought before the mining world. Mr. Shepherd expects to leave the first of the week to complete in detail the sale of the property. Sandy Simpson, C. B., will accompany him for the purpose of surveying several mining claims to be taken up after exploration.

##### Coahuila.

(Extracts from The Trader.)

The Carmen mine, located near the Rio Grande, is shipping large amounts of smelting ore to El Paso for treatment. To facilitate these shipments they are putting a cable across the river, and in the near future expect to secure a railway to the property.

## OAXACA.

Messrs. Cook, Clark and Kennedy have opened up a new gold mine, near the line of the Southern Railway, a short distance south of the Tomellin Station of that road, in the district of Santa Catarina, and are shipping two carloads weekly of ore running from 3 to 5 ounces of gold per ton. This is one of the best discoveries in this famous mining state, and will, without doubt, be followed by others in the same district, which is specially favorable to vein gold formation.

## Puebla.

The reduction works of the Compania Beneficiadora de Tlaxcingo, located in the district of Tlaxcingo, was formally opened on the 22nd of February last. The works consist of a crushing plant of 75 tons daily capacity, a Howel-White Roaster, of 40 tons daily capacity, with tanks and filter presses to treat by the leaching process. The plant is thoroughly modern in design and embodies many new ideas in ore treatment.

## Hidalgo.

President Diaz visited Pachuca on the 6th of March, to inaugurate the powerful pump recently acquired for the purpose of unwatering the Carmen mine. The machinery cost \$200,000, the pump is a Cornish one, capable of lifting 68 gallons of water per stroke, or 900,000 gallons per day. It was designed by Messrs. Rickle & Co., of Plymouth, and is an exact counterpart of the pump used at the Maravillas mine, except that the cylinder of the new one is a 60 inch, in place of 70 inch.

## Guanajuato.

This state has always been regarded as one of the richest mineral sections of America. Until quite recently prospectors have had to abandon their rich discoveries on account of lack of transportation facilities and scarcity of labor. The construction of the Mexico, Cuernavaca and Pacific Railway has commenced to open up this wonderful country, and the result is that far-seeing concerns, like the Guggenheims, the Consolidated Kansas City Smelting and Refining Company, the Mexican Metallurgical Company, and other leading mining concerns, have sent American experts and prospectors to investigate the marvelous richness of this great belt of mineral deposits included within the limits of this state.

## NEVADA.

## Salmon Mining District.

Located about sixty miles from Wells, in a northerly direction, is the rapidly growing mining camp of Salmon. The Salmon mining district was located in 1872 by Messrs. Banks, Lewis and Noll, and for a time created great excitement among prospectors, but the milling processes soon caused the excitement to die out and the camp to sink into oblivion. About two years ago the attention of mining men was again attracted to this district and several tons of gold and copper bearing rock were shipped to the smelters at Salt Lake City. The returns instilled new life into the miners and considerable development work has since been done. Last year a large smelter was erected by eastern capitalists and the camp commenced to grow and is still growing, and we have every reason to believe that the Salmon district will soon develop into one of the largest gold producing camps in the west. During the winter months the smelter has been lying idle on account of the deep snow in that section and the poor condition of the roads leading to Wells, which prevented the transportation of coke and other fuel with which to keep the works in operation. But several of the mines have been kept open all the winter, and when the snow will have disappeared and the roads have again become passable, there will be more than enough rock to run the furnaces for several months. At present there are about 200 men in the camp, living in rock houses and tents.

## Outlook at DeLamar.

Ralph Nichols, who recently resigned as superintendent of the DeLamar mining company at DeLamar, Nevada, says that the output of the bonanza is nearly 300 tons a day, while the mill was never running more satisfactorily. The ore bodies are in superb condition, there is enough gold bearing rock in sight to supply the plant for an indefinite period, and everything so far as minor matters are concerned, is perfectly harmonious.

Gold ore worth \$40 per pound is being taken out of the Dexter mine in Tuscarora. A large body of low grade ore has also been uncovered in the same mine.—Reese River Review.

Col Sutherland was in Hawthorne last week and proceeded to Candelaria. It is said that if the Bailey process is a success on Candelaria ores, work will be resumed in the mines.

## Silver Peak Notes.

A new strike has recently been made in the Mary tunnel. There is a large body of quartz at the point where the tunnel cuts the ledge both ways, are in about ten feet on the north side and about five feet on the south. The quartz horns well throughout. Some of it shows free gold, and everything looks favorable. John Chiatovich deserves success for his pluck and perseverance, and has undoubtedly got a fine mine.

Sam Case is getting out some very rich ore from the Homestead mine. The Mary tunnel is being pushed ahead to tap the ledge on which he is working, and must be very near it now. The tunnel will tap the ledge about 600 feet deep.

News from Alida and Tale Canyon is encouraging.

It has been learned that eastern capitalists have bounded the immense copper mines a short distance from Yerington, some fifty miles from Carson, and are to build a mill and smelter at once. The opening up of the copper industry in Nevada promises to extend further, as there are several fine mines in the state.

## NEW MEXICO.

## Hillsboro Mines and Mills.

Twenty-seven leasers are at work on the Snake group and all doing well.

The "North Homestake" mine at White Oaks has put a few more men to work.

The Charter Oak mill has finished a very satisfactory run on ore from Mr. Hirsch's Prosper mine.

Crews and Fanning shipped a car load of high grade ore from the Opportunity south shaft workings this week.

The appropriation made for the school of mines at Socorro by the Territorial legislature is the same as that of two years ago.

William Wayland has gone to work on the "Yellow Copper" mine at Hillsboro, owned by Mrs. Col. Dissinger and himself.

The sale of the "Helen Rae" group of mines near Nogal, Lincoln county, has been consummated and development work on the property will begin at once.

The final expert examination of the placers by Mr. Wm. B. Farish will be finished tomorrow. About fifty men have been employed digging, sampling and washing the gravel.

Joe Camper and some others have taken a lease above the opportunity first level. They have a large block of ground to operate upon and will be considerable shippers this spring.

R. A. Nickle is making regular shipments of sortings from the old smelter dump and is producing stuff that runs from \$30 to \$100 per ton.

Some of the new leases made on the Snake last month call for important development work. Among others Lindner and Crumrine undertake to from sink the old 350 level.

W. S. Hopewell has ordered a new hoisting whim for the Catherine mine and will resume work there as soon as it arrives.

Articles of incorporation of the Hillsboro Smelting and Refining Co. were filed last week in the office of County Clerk Hall.

The 500-foot level south of the Snake mine is in rich ore with a vein varying from six to eighteen inches in width.

At the Richmond mine seven more men have been employed at wages and the number of lessees is increasing.

W. W. Williams has secured a bond and lease on the Corinth mine, a valuable silver lead property in the Tonopah district.

David Stitzell is developing his very promising Summit mine.

The smelter at Copper Flat blew in Mch. 10th and is running full blast. Large ore reserves are in sight in the mine, and under the efficient practical management of N. S. Berry, who is an experienced metallurgist and mine operator, there is every reason to predict a grand success for this new company.

The Confidence mill has its full 30 stamps at work producing bullion at Mogollon.

A company of local merchants and mining men at Mogollon are making arrangements to start the Last Chance mine. The ore will either be worked at the Maud S. mill or the Last Chance mill will be remodeled and the ore reduced at the mine.

W. G. Lane, of San Marcial, has gone to La Joya to inspect and encourage development work on his mining claims.

The new gasoline hoister is at work at the C. and C. mine at San Pedro.

Superintendent Wood, of the Vanderbilt company, at Nogal, was in White Oaks Mch. 5th, and reports work going on in that camp so far as his company's mines are concerned. The business is being rapidly adjusted and a full force will soon be engaged for enlarged and active operations.

The shaft on the Black Copper had reached a depth of 340 feet. The work of drifting at the 135 foot level is to commence immediately. The tunnel on the Jewel claim is in 330 feet and a cross cut is to be started.

Output of Hillsboro gold mines for the week ending Thursday, March 18th, 1897, as reported for the Advocate:

	Tons.
Wicks	20
Butler	15
Richmond	30
Happy Jack	15
Snake Group	35
Opportunity	10
Sherman	10
Prosper	5
Eighty-Five	5
Percha (silver-lead)	5
Total	150
Total output since Jan 1, 1897.	2,100

## Chloride Notes.

Thos. Scales is having assessment work done on the Bullion group of mines on Wild Horse. Mr. Gordon is doing the work.

Mr. Scales and Jas. Taylor have completed assessment work on the Confidence, the property of the former, located in the Cuchillos. Ore recently tested from Mr. Scales' Daisy Bell, near Grafton, gave returns of 628 ounces silver and 4 3-100 ounces gold to the ton.

Phil. Harsch and John Caldwell are working the Fannie property situated on Monument creek. They are taking out and sacking good grade shipping ore. The ore has good values in silver and copper carrying some gold. This property was formerly known as the Hermosa.

The Dictator claim, on the east side of the Cuchillos, which is being worked under lease and bond by the Cliff Mining & Smelting company, is improving with development. Ore from this claim gives returns of 45-100 in gold, eight ounces silver, eight per cent. copper and 25 per cent. lead.—Black Range.

## Bland Notes.

The Washington mine is shipping a quantity of its valuable ore to the Pueblo smelters.

Jake Larzelere is doing the assessment work on the Blosburg, a valuable property lying between the Good Hope and Ellen L., and belonging to E. F. Peter and Mr. Larzelere.

The Lone Star has resumed work in the second level to continue the upraise that is to connect with the upper level, and are working in a large body of the richest ore yet discovered, in the lower 500 foot level.

Messrs. Philpot, Rhodes and Bass are constantly doing good work on the Louis, an extremely valuable claim in the neighborhood of the Albemarle group. They are driving a tunnel to cross cut the five foot lead at a depth of 110 feet.

Harry Wood was recently over from Peralta, where he and W. F. Read are working the Henry M. Teller, Elkton and Barney Barnatto claims, and reported everything in that part to be flourishing and says that it is the coming country.

Henry and Jess Brown will resume work on the Sheridan tomorrow. This claim is the adjoining one north of the Ontario, which adjoins and is one of the Albemarle group, the lead of one being that of all. Henry Brown, who is one of the owners, intends to do considerable work on his valuable property from now on.

S. W. Young and John Hart, who are interested in several properties in Peralta canyon, returned from that end of the Cochiti district on Wednesday, the 24th ult. The former gentleman reports considerable work going on there and states that in his judgment Peralta canyon, which displays on the surface more lead than any part of the district, will become a great camp in itself, with development.—*Herald-Weekly*.

#### UTAH.

It is understood that the Sioux mill at Mammoth has been leased to well known mining men who will re-open the same as a custom mill.

It is stated that the Lilly mine, in Tintic, is showing up in great shape, and that a fine body of ore has been disclosed in the property that assays 70 per cent. lead to the ton, besides some silver.

The April dividend of \$20,000 declared by the Alice Mining company is payable Wednesday, April 7th. There are now 300 men at work in this Montana property, including the lessees and tributaries, and the 60-stamp mill of the old company is running regularly.

An underground survey of the Ajax and Napoleon mines at Mammoth will be made this week under instructions of the court. It is believed by some that the outcome of this will be litigation between the Ajax Mining company and the owners of the Napoleon ground.

It is the general impression that the Utah and Galena Mining companies will resume the payment of dividends this month, as it is stated that the treasury department of both companies is in good condition. The recent nib strike in the Utah will surely call for a "divy" at an early day and there is hardly any doubt that it will be forthcoming in due time.

Word was received March 29th that a fine body of ore has been struck on the 600 level to the north of the shaft in the Bullion-Beck mine at Eureka, and it is believed that as work progresses in this direction the mineral zones will grow in size and value. As says from the new strike show values of 20 per cent. lead and 67.5 ounces in silver to the ton.

A. Murphy, who recently purchased the Green-Eyed Monster mine, in Newton district, Beaver county, has just let a contract to Jardine & Myton for 50 feet of shaft work on this property, after which the ledge is to be cross-cut to determine its extent. The Monster is one of the most promising gold propositions in this western country, and if it holds out according to surface indications it will develop into one of the greatest mines in the state.

Hon. C. C. Parsons, of Denver, arrived in Salt Lake City for the purpose of making the final payment of \$51,000 on the Highland Boy mine at Bingham, recently purchased by Sam Newhouse and his eastern associates. The Highland Boy Mining company was incorporated under the laws of New Jersey a short time ago, and Mr. Parsons is acting as attorney for the corporation. The Highland Boy is being extensively developed under the management of Thomas Weir, of Salt Lake City, and contracts have been let for a fine mill, which will be erected on the property this summer.

E. L. Talbot, the efficient superintendent of the Frisco mine, at Bingham, who was in Salt Lake City the 1st inst., informs the *Herald* that this property is looking better than ever before since passing into the hands of the present company, and that he is opening up its ore reserves in a most satisfactory manner. At the present time, in the north drift he is working his men on 14 inches of pay ore, while in the south drift from the lower levels he is just breaking into a fine body of high grade mineral. The company expects to begin ore shipments as soon as the roads are opened, and soon after it is the intention to install the new hoisting plant and pump. From all indications the Frisco is down on the list as a winner.

The Olson brothers, who are working the old Hiatt mine in Black Jack gulch, Bingham, on a bond and lease, were in Salt Lake City the 1st inst with a carload of ore from this property. The Hiatt was one of the abandoned mines of the camp a few months ago, but since that time it has been developed in a thorough manner by these practical miners, and they have a fine body of marketable ore exposed in this property, from five inches to a foot in width, that has been stripped for a distance of from 40 to 50 feet. The boys are not trying to see how much ore they can break down at the present time, but they are developing the property in a miner-like manner, and when the roads become settled they hope to be able to begin regular and continuous consignments of the precious metal.—*Salt Lake Herald*.

#### Gold Mountain Activity.

A New York syndicate has recently offered Messrs. Moore and Snyder \$80,000 for a one-half interest in the Advocate mine, at Richfield, stipulating that \$20,000 of this amount should be used by the grantors in opening up the mine and purchasing a plant. Moore and Snyder, owning several other good things, would prefer to either hold on to the Advocate or sell it for straight cash; but nevertheless they are considering the New York people's proposition. The Advocate mine is just across a little gulch 800 feet from the Miller and its owners feel able to prove its vein the same as the Miller's in size and value.

Work on the Miller is going on merrily. Ten men are sinking the shaft, now some 70 feet deep, and for the last few days have been drilling.

At least twelve Gold Mountain mines will have forces of men actively engaged in gouging after gold this season. A low estimate places the number of miners to have employment on Gold Mountain by the first of August at 250.

Reports from the property of the Summit Mining company, on Beaver creek, near Park City, are to the effect that the strike in the incline is looking better as development work proceeds. At a depth of 200 feet white spar, streaked with galena, which gives some promising values, has just been encountered.

Nothing startling has developed at the Valeo this week, although the character of the rock, lime and quartz, in the face of the tunnel, which is now in 496 feet, indicates the close proximity to the ore body. Superintendent Duncan, who was in Park City the 1st of April, is feeling much encouraged over the prospect, but does not think the ledge will be encountered for a couple of weeks yet.

The North Golden Gate company has let a contract for 50 feet more development work.

Another 100-foot contract has been let on the Searchlight property, at Sunshine, which takes the shaft down to the 300-foot level.

It is reported that the Sacramento company, being desirous of doing a large amount of work the coming month will pass the usual dividend.

Manager Johnson of the Gold Point group is laying a pipe line from the mine to the Gold Belt water line, a distance of 2200 feet. A steam hoist has been ordered and plenty of water will be necessary. The mine is being operated by three eight-hour shifts.

The Wonder is still drifting for the vein. The drift was started about fifteen feet below the vein and will intercept it in a few feet further on its dip.

The Geyser-Marion made a shipment of cyanides during the week. Stockholders are expecting a dividend April 1st.—*Mercer Mercury*.

The net earnings of the Horn Silver Mining Company of Utah for the fiscal year just closed was \$276,000, including a dividend of \$50,000 disbursed to shareholders.

The prospect of having a railroad built into Deep Creek district Utah this summer has caused renewed activity.

From reliable sources it is learned that the Mercer mine is looking exceedingly well—better than ever before in its history, and it is believed when the company has completed the addition to its milling capacity that the monthly distributions of wealth will be materially increased.

The Bullion-Beck has already paid \$120,000 this year, and the addition of the March divy will make a grand total of \$170,000 for the first three months 1897.

At the meeting of the directors of the Bullion-Beck March 10th, a new rule was adopted, and beginning on that date, the books of the company were closed for transfers of stock until the 21st, and hereafter the transfer books will be closed on the night of the 9th of the month, and will remain closed until the 21st.

Good reports continue to come in from the Hecla, at Mercur, and it was stated recently that since the re-organization of the company and the taking up of the bond, there has been an active demand of the stock of the corporation, and that during the afternoon of March 11th 2,000 shares of the treasury stock of the incorporation changed hands at 50 cents a share.

Superintendent Green, of the Buckeye, at Silver City, stated that work was being pushed in the sinking of the shaft, and that the new steam pump was working in a most satisfactory manner. The shaft

is now being run in country rock, but it is expected that in a short time it will encounter the vein on its dip. In the the drifts and levels of the mine the showing is most encouraging.

At the west dip of Camp Floyd district, work is being pushed in the development of the La Cigale properties, and the showing in this ground is better than ever. A contract has been let for a mill for the La Cigale, and it is expected that it will be in active operation by mid-summer, by which time other mines in the same locality will be ready for reduction works.

Dr. E. D. Woodruff, the manager of the Northern Light Mining Company, said that it was the intention to increase the tank capacity of the new mill to 250 tons daily as soon as the roads became settled, and it was further stated that it would not take long to do this, as everything was ready for the addition. It is believed that the mill will be started up Friday, April 2, for a continuous run, and the management has the utmost confidence in the outcome.

C. L. Dignowity, of Salt Lake City, who is largely interested in Camp Floyd district, in what is popularly known as the West Dip, has just consummated a deal whereby he has sold a group of ten claims in Rush Valley to Herbert Nash and D. W. Kimball, of Boston, for a cash consideration. These claims adjoin the locations made by Captain DeLamar in that locality, and Mr. Dignowity states that it is the intention to do considerable development work upon them the coming season. This is the first transfer that has been recorded in Rush Valley for some time, but it is believed that as soon as the season opens there will be a great deal of activity there, and it the prevailing opinion among those who are acquainted with this section that some valuable discoveries will eventually be made in addition to that made last fall by two Italians.

#### GENERAL NEWS.

When a mine is to be worked, there are several things to be considered before the plant for reducing the ore is erected. The first thing is to discover the true value of the ore; the next, the best process to work it by, and right here it can be said that the success of all mining operations depends upon the ability to save everything in the ore. The country is full of mills, smelters and different reduction plants, erected without any regard to the character of the ore to be treated. F. M. Johnson & Co., at 23 Stevenson street, San Francisco, are making practical working tests, and advising as to best methods of working ores, and can save investors from making mistakes. The prospector knows more by looking at the ore (that is, he thinks he does) than can be ascertained by taking several tons and practically demonstrating how it should be worked. In the past, expensive mills have been erected, and after the money has been spent, it has been discovered (when too late) that some other process should have been adopted to obtain the best results. All this annoyance and expense can be avoided by taking your samples to people who have had years of experience, and have every mechanical contrivance known, to do accurate work. The firm of F. M. Johnson & Co. have started in to satisfy the miner, and will undertake to treat ores of every description. They will give any information desired about working them free. They also give courses in mining, assaying, amalgamation, chlorination and free milling tests at reasonable terms. They will cheerfully answer all inquiries about their business, rates for doing work, and give any information desired. Their experience of over twenty years on the Pacific Coast enables them to intelligently advise all who seek their services.

Failures in mining operations are, like in any other business, due to many causes, but the principal one is ignorance of the best pro-

cess to economically save the values. In the old days of mining in California, nothing was considered worth saving which left the plates; but since mining has become a science, and low grade mines produce a large percentage of the precious metals, it has been found necessary to concentrate with a device that will extract every color, so to speak. Inventors of different concentrators have all claimed to have discovered the desired panacea to work the concentrates successfully, and a large number of machines have been put on the market. The McGlew ore concentrator, which was patented in 1893, has, through its simplicity and cheapness, become the favorite among millmen.

The concentrator is made of iron or steel, and is mounted on a strong wooden frame, and will handle ten tons in twenty-four hours, saving 95 per cent. It can be so adjusted that a side, end, or side and end shake combined can be obtained. The speed of the belt can easily be regulated whilst running, as well as the incline of table. The cost of repairs on one machine, from April, 1893, to October, 1895, was \$3.10, only one tenth horse power is required to operate the concentrator, as it is ball bearing, and is so simple in construction that a number of machines can be handled by one man. The McGlew is used in California, Nevada, Washington and Oregon, also in Central America, Australia, Mexico and many other parts of the world, and is giving universal satisfaction. Mr. John B. McGee, of Ashland, Oregon, reported finding only 40c. per ton in the tailings, after being worked by a McGlew. This concentrator has received the highest endorsements from many well known millmen and miners.

C. A. Luckhardt & Co.

A short description of this old and well-known establishment will be of interest to the mining public.

The increasing demand for practical and accurate knowledge, of the latest and more scientific treatment and working of ores, made it necessary for Messrs. C. A. Luckhardt & Co. (Nevada Metallurgical Works) to remove from the place where the business had been conducted for the past twenty-five years to quarters more suitable for the additional heavy machinery.

The new works are located at 71 and 73 Stevenson street, a block east from the Palace hotel, in San Francisco, Cal.

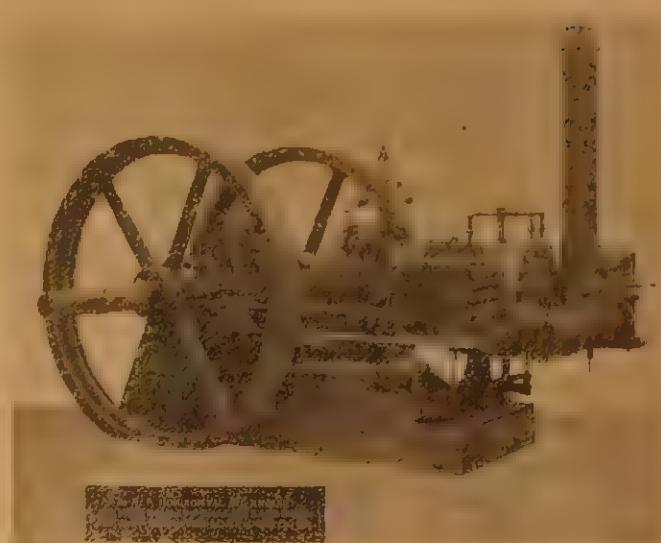
The plant was built by the Union Iron Works, and is most complete in all details. It consists principally of a three stamp iron frame battery and improved Union concentrator which are in constant operation, amalgamation pans, tanks, pulverizers, crushers, samplers, a two-hearth reverberatory furnace, smelting and assay furnaces, and a thoroughly equipped laboratory for analytical and assaying work.

Practical working tests of ore made by any process is a specialty.

CAPT. A. H. WARD, Proprietor.  
W. G. LUCKHARDT, Manager.  
DAVID CRAELIUS, Mgr. of Laboratory.

71 and 73 Stevenson st.,  
San Francisco, Cal.

A special New York says: A New York syndicate has purchased the Armenia and Herald gold mining claims in the San Juan mining district of Colorado. Jacob Alexander, Amoy, Colo. Transfer papers were signed last week and the property turned over to the Golden San Juan Mining company, incorporated under the laws of West Virginia with a capitalization of one million shares. The members of the syndicate are all eastern people.



HERCULES GAS ENGINE

#### Hercules Gas Engine.

As gasoline engines, especially for mining purposes are coming more and more into general use, it will interest our readers to note the illustration of an 80 h. p. Hercules, self-starting, gasoline engine, which has just been shipped to the Rawhide mine, near Jamestown, Tuolumne County, Cal., where it will be used to drive the Company's new 10-inch Cornish pump.

As will be seen, the engine is of the horizontal, single cylinder, type, very heavy and substantial, of simple design and built to withstand severe and continual service.

The generator will vaporize either gasoline or low-grade distillate oil, the latter being an exceedingly efficient fuel and very cheap.

The governor, instead of being the usual flywheel or shaft type, is a fly ball or pendulum governor, and controls the speed of engine very closely by operating a valve in inlet pipe.

The electrical igniting device is very substantial and easily cared for. The electrodes are heavy pieces of hard steel, located in combustion chamber, the electrode stems passing inlet valve head to permit tension springs being external and away from heat. This obviates the necessity of removing head to renew or adjust electrode springs. The tension springs can be adjusted while engine is running. A self-starting device does away with either a small starting engine, or the labor of turning engine over by hand. The point of ignition is adjustable, permitting the highest possible efficiency at minimum consumption of fuel.

Every precaution was taken by the builders, the Hercules Gas Engine Works, to guard against mishaps, and under exceedingly sure tests, the engine made a splendid show of economy, efficiency and general excellence.

The firm of Endlich & Davis, mining engineers and metallurgists, doing business at the Bullard Block, in Los Angeles, Cal., has been dissolved. Mr. Evan Davis retiring. Dr. F. M. Endlich has associated with him Geo. F. Hoyt, a young mining engineer, who comes to Los Angeles with the highest testimonials. The new firm will continue business at the old stand, and are prepared to attend promptly to all work entrusted to them.

The Hammond Manufacturing Co. of Portland, Oregon, have closed a contract with the Portland, Alaska, Gold Mining Co., for a wire rope tramway, over 9000 feet between terminals, for their mine at Berners Bay, Alaska. The indications are that there will be a larger amount of mining machinery sold this season than ever before in Alaska. The prospects for Eastern Oregon, especially Baker county, are also exceedingly bright. The Hammond Manufacturing Co. are building up a business that extends all over the North-west, Pacific Coast and to Alaska.

W. A. Fruhling, of Los Angeles, has just sold a 20 H. P. Zenith gasoline engine, to be used by E. S. Blasdel, for his boat, that will ply upon the Colorado River from Yuma. The boat is over 40 feet long and draws 18 inches of water. The main business will be in towing barges up the river to carry ore. It is a new twin-screw boat, designed by Chas. H. Wedgewood, who built the Defender Jr. last year in Los Angeles.

Within two years past, between 3500 and 4000 Anaconda axles have been put in use in Montana and other Western States and British Columbia. Users find them cheap, simple and easy to care for, and repeat orders are numerous. A catalogue describing this axle is published by Fraser & Chalmers Chicago.

#### PERSONAL-NEWS ITEMS

F. M. Bradshaw, of the Aurora mine in the Alamo, Lower California, Mexico, has returned to Los Angeles for a few days.

E. B. Gage of Congress, Arizona, was one of the visitors in Phoenix the 25th ult.

Sol. Guggenheim returned to Monterey, N. L., Mexico, the middle of last month from the City of Mexico.

C. L. Hall, superintendent of the Mammoth and Bull Dog mines at Goldfields, Arizona, was circulating among his friends in Phoenix the last of March.

Wm. Purcell, the mining man of northern Mexico, returned to his home at Saltillo, Mexico.

T. Bryant Comstock, E. M. of Prescott, Arizona, was in Los Angeles March 29th and was among the callers at the Journal office.

E. L. Giroux, the noted mining man of Jerome, Arizona, was in Phoenix, the 26th of March, on his way home from an extended business trip to Europe. He spent most of his time in Paris.

John Lawler of Prescott, Arizona, spent several days in Los Angeles last week.

## THE MINING AND METALLURGICAL JOURNAL.

Theo. B. Comstock, ex-president of the University of Arizona, returned to Mohave Co., Arizona, last week after an extended trip through the east.

Russell L. Dunn, E. M., is in London. He went from Paris there after his return from Siberia.

United States Debris Commissioner Captain Gillette has been in Plumas county, Cal., inspecting dams.

H. C. Herrick, a prominent mine owner of Dos Cabezas, Ariz., was a visitor in Tombstone the fore part of the month.

H. M. Abbott arrived in Jerome, Arizona, the fore part of the month and will begin operations on his X. Y. Z. properties adjoining the United Verde mine.

C. B. Strong, a mining man of prominence from New York, was in Tombstone, Arizona, negotiating a mining deal of considerable importance the fore part of this month.

Charles F. Hofiman, accompanied by his son, Ross, reached St. Petersburg, Russia, January 1st, on his way to Siberia. The mines he goes to are on the Amoor river.

David Allen, of Washington camp, Arizona, was in Tucson, Arizona, last week. He has owned the Pool group of mines for many years, and has shipped a great deal of ore from his properties.

W. W. Hill, superintendent of the Black Warrior mine, near Globe, Arizona, was in Phoenix, the 26th ult., and reports development work on the Black Warrior going on rapidly.

Messrs. Bennett, Simms and Bennett of Phoenix, Arizona, have just returned home from a visit to the Fortuna mine in Yavapai county.

J. J. Reilly of Prescott, Arizona, one of the best known mining men in the territory, has just returned to Prescott from a trip to Chicago.

E. P. S. Andrews of Phoenix, Arizona, left the 26th ult., for Jerome to visit a claim owned by his brother.

Col. S. P. Sykes of New York, arrived in Tucson March the 25th, en route for California, Arizona, where he has a brother interested in mining.

W. L. Bretherton, a mining man of Montana, was in Tucson, Arizona, the 22nd ult.

Ed Richardson of Ensenada, Lower California, Mexico, is now in the West Indies at Kingston, Jamaica, following his profession, that of Civil Engineer.

J. B. Cleveland, a mining man of Minneapolis, in Phoenix, Arizona, the 24th ult.

Joe Peterson, former superintendent of the Vizcaya mine at Alamo, Lower California, Mexico, is now in California on an extended visit.

Dr. F. D. Kendrick a mining man of Minneapolis, Minn., has been in the Santa Maria mining district near Prescott, Arizona, examining some mining properties with Hon. Nick Gates of Prescott.

Jno. B. Wiegle, a well known mining man of Santa Rita, Arizona, has gone to Baltimore, Md., for a few weeks' vacation.

Chas. Legge of Pasadena, Cal., has gone to Tucson, Arizona, where he is interested in the mining business.

C. W. Lyke E. M., was among the Journal callers March 31st.

W. E. Colton of Seattle, Wash., is in Tucson, Arizona, looking for some good mining propositions.



## Hercules Gas, Gasoline & Distillate Engines

Hoisting Engines 2 to 200 H.P. Stationary Engines 1 to 200 H.P. Marine Engines 2 to 200 H.P.

Our newly designed and perfected DISTILATE VAPORIZER insures a saving of 50 per cent. on cost of running. Just 1/2 your expense saved by using a HERCULES in place of any other. We make no exceptions.

Nearly 3000 Hercules hoisting, Stationary and Marine Engines in Actual Use. high Grade.

We claim full power, automatic and positive adjustment regulating speed and consumption of fuel in proportion to work being performed. No spring electrodes to burn out. All springs are outside. Points of ignition, speed and amount of fuel can be changed while engine is in operation.

We make a Specialty of Mining Trade. Address Hercules Gas Engine Works

Established 1880 WORKS -215, 217, 219, 221, 223, 225, 227, 229, 231 Bay Street, SAN FRANCISCO.

OFFICE: 405 407 Sansome St., SAN FRANCISCO, CAL.

Write for Illustrated Catalogue.

## TUTTHILL WATER WHEEL

The Latest and Best Wheel in the Market, BARRING NONE.

Wheels, Buckets and Nozzles designed to suit Special requirements, when Head and Conditions are Given. Theoretically as well as practically Perfect. Highest Efficiency Guaranteed. Contracts taken for Any size plant.

We have a Sensitive, Simple and Durable Governor, entirely new and novel, that will positively regulate speed of wheel. Specially adapted for electric railway and Lighting Plants.

OAKLAND IRON WORKS, BUILDERS, 108 First Street, San Francisco

Write for Catalogue

Telephone 1007 Main

PROSPECTORS! Assaying and Determination of Minerals Simplified at

LUCKHARDT'S COMBINED ASSAY OFFICE

28 O'FARREL STREET, SAN FRANCISCO, CAL.

(Incorporated)

## Ores! Ores! Ores!!

Gold, Silver and Lead Ores and Concentrates

Purchased at Reduced Rates for Treatment.

## Selby Smelting and Lead Co.

416 MONTGOMERY ST., San Francisco

Consign Shipments to Vallejo Junction, Cal.

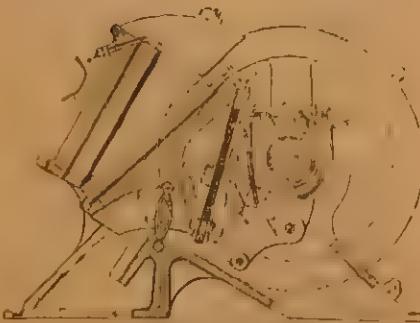
GEORGE F. HOYT,

MINING ENGINEER U.S. DEPUTY MINERAL SURVEYOR

Office, 335 336 Wilson Block,

Los Angeles, Cal.

## THE MORRIS ROCK BREAKER & ORE CRUSHER



IT MAKES A FINER AND MORE EVEN PRODUCT THAN ANY OTHER IN THE MARKET, AND IS PECULIARLY ADAPTED FOR DISTRICTS WHERE FUEL AND WATER ARE SCARCE.



IT REQUIRES LESS POWER THAN ANY OTHER MACHINE PERFORMING THE SAME AMOUNT OF WORK.



MORRIS ROCK CRUSHER

For further information, Catalogues and Testimonials apply to

D. M. DOUB, General Agt., 137 First St. San Francisco.

B. O'Neil of Elmhurst, Cal., was in Tucson, Arizona, March 27th, on mining business.

Prof. P. D. Barnhart of Prescott, Arizona, has recently returned home from Kingman where he has been engaged in placer mining.

W. C. Rollins, the prominent mining man of Chihuahua, Mexico, will take a few days' recuperation in the Santa Rosalia district, in the State of Chihuahua.

Prof. J. L. Harrison is operating some mines in the mountains, near San Jacinto, Riverside County, Cal.

L. A. Sneath was in Riverside, Cal., from the Hemet mines, the fore part of last week.

G. G. Grennel, of Denver, Colo., a mining man of prominence, was in Phoenix, Ariz., lately, looking into the mining possibilities of that territory.

L. P. Heeser, of Phoenix, Ariz., went to San Francisco last week, to meet his brother, who is returning from South Africa, where for nine years he has been engaged in mining.

L. B. Porter, of Los Angeles, has gone to the State range, in San Bernardino county, Cal., to take charge of a cyanide plant.

H. L. Nelson, the real estate and mining broker of Randsburg, Cal., was visiting in the city for a few days the last of March.

Col. T. W. Brooks of Pomona, Cal., is about to make his departure for Honduras, where he will engage in the mining industry.

A. F. Holden, the manager of the Old Jordan and Galena mines at Bingham, Utah, has just returned from his trip through this state.

B. D. Haskins of Salt Lake City, Utah, has recently returned home from Montana.

E. G. Rognon, who is interested in mining in Salt Lake, Utah, returned to the above place from Chicago the 29th of March.

W. P. Mitchell, the inventor and patentee of the Mitchell Acme Flour Gold amalgamator accompanied by his friend and partner, Captain William Howe, returned the last of March to Salt Lake City, Utah, from a three months' visit in the canyons of the Colorado river.

G. M. Hyams of Boston, manager of the Butte and Boston and Boston and Montana mining companies of Butte was in Butte the 28th ult, on important business.

P. J. McLane, secretary of the Senator Mining Co., in the Buena Vista district, near Phoenix, Ariz., is visiting Cleveland, Ohio, New York and other eastern cities.

R. W. Keefer of Eagle Cliff camp in Riverside County, Calif., was in Los Angeles last week.

S. A. Harsh, manager of the Revenue Cyanide Works at Norris, Montana, was in Hillsboro, N. M., last week, making an examination of some mineral properties.

W. T. Hodges, of the Picacho district, San Diego County, Calif., is now in Phoenix, Ariz., and is very enthusiastic of the Picacho country.

C. A. Dressel, who has been in Maciaciona, near Penner, called at the JOURNAL office last week.

B. Salazar E. M. of Chihuahua, Mexico, now a resident of Los Angeles, Cal., left the latter place March 28th for Sonora, Mexico, where he will investigate mining properties.

Joe Ward and Omer Ramey of Williams, Arizona, have gone to the copper mines near the Grand Canon.

B. F. Thomas of Victor, has been in Los Angeles for some time past. He intends to resume his mining operations, near the Rose mine, soon.

Wm. E. Jacobs, a prominent mining engineer of Salt Lake City, was among the callers at the JOURNAL office, March 24th.

John Creighton, of Creighton & Graves, Magdalena, went up, March 25th, to Golden, N. M., to look after his mining prospects.

Thos. M. Park, who is interested in the Alice mine in the Perris district, called at the JOURNAL office March 22nd.

Charles J. Dold, one of Hematite's pioneers and a gentleman largely interested in the Hematite and Black Copper districts of New Mexico, arrived in the former place from Kansas City last month.

J. S. Hathaway of Randsburg, Cal., called at the JOURNAL office March 31st.

#### Obituary.

R. K. Eastburn, manager of the Lake Valley Silver Mining Co., at Lake Valley, New Mexico, died in Philadelphia, Pa., last week, of pneumonia.

## Lacy Manufacturing Co.

Manufacturers of

Steel Water Pipe, Well Casing, Oil Tanks and General Sheet Iron Work, Irrigation Supplies, Steel Water Pipe for Hydraulic Purposes.

4 BAKER BLOCK,

LOS ANGELES, CAL.



## THE Denver Fire Clay Co.

Assayers' and Chemists' Supplies

Manufacturers of

Ornables, Scourers & Muffles  
And all other kinds of  
Fire Clay Material,  
SPECIALTIES—Strictly c. p. Acids  
Test Lead, Bone Ash, Cyanide  
Potash, Argol, Borax, Borax Glass  
Iron Sulphides, Litharge, Soda,  
Mining Fluxes, etc.

Sole Agents for the  
Ainsworth Balances

3101-3141 Blake St., 1742-1746 Champa St., Denver, Col.

## An Assay

Will show what is in your ore.

## A Mill Test

Will show what you can get out of it.

## We Do Both

Practical working tests made of ALL CLASSES OF ORES and advice given as to best methods of extracting values. Mines examined and reported on. Twenty years experience with Pacific Coast ores.

### THE CHRYSOMETER.

A CHEMICAL ASSAY OUTFIT. Anyone can use it. Chemicals enough for 100 assays with each \$35 outfit. J. W. PITTNER, Sole Manufacturer, 907 17th Street, Denver, Colo.

### Cobb & Hesselmeyer,

### MECHANICAL ENGINEERS

Hydraulics, Power, Tests, etc.

421 Market Street, Rooms 70 and 71  
SAN FRANCISCO, CAL.

### F. M. Johnson & Co.

23 Stevenson Street,  
SAN FRANCISCO, CAL

## FRANKLIN BOOTH, Mining Engineer and Metallurgist

WITH L. BOOTH & SONS

338 North Main Street,  
Specialties: Examination of property,  
Milling of Gold Ores and Treatment of  
Sulphurites

LOS ANGELES  
Late Instructor in Assaying and Mill practice  
University of California; Assayer and  
Foreman in Chlorination Works, Alaska;  
Treadwell Co. St. Co.

OFFICE, 209-211 SAN  
**PACIFIC SHEET METAL WORKS.**  
MISSION ST. FRANCISCO, CAL.  
MANUFACTURERS OF  
**IRON & STEEL WATER PIPE & WELL CASING**  
Air Pipe, Concentrator Rolls, Galvanized Tanks  
—SPIRAL LEADER PIPE—  
And SHEET METAL WORK of every description.  
Largest and Best Equipped Factory in the West. Correspondence Solicited

**VANDUZEN STEAM PUMP**  
THE BEST IN THE WORLD,  
Pumps Any Kind of Liquid.  
Always in Order, never Clogs or  
freezes. Every Pump Guaranteed  
10 SIZES.  
200 to 12,000 Gallons per Hour  
Cost \$7 to \$75 each. Address  
Jas. Linsford, 27 Market St.,  
SAN FRANCISCO, CAL.

**B. T. LLOYD**  
GOLD MINES,  
Stocks and Bonds  
BOUGHT AND SOLD  
McCormick Building, Salt Lake City, Utah

B. M. CALKINS

PHONE "BLACK" 891.

J. J. LONERGAN

**LONERGAN & CALKINS.**

**Gold & Silver Refiners AND Assayers**

MINING EXPERTS AND PROMOTERS

Miner's Gold and Silver Bought

Also Old Gold and Silver

Agents for S. S. LIGHTFOOT SYNDICATE

Cable Address "Loneragan, Los Angeles"

London, England.

127 W. FIRST ST. LOS ANGELES, CAL.

## Assayers and Chemists

### WADE & WADE

Best and Oldest Establishment in Southern Cal.

115½ N. Main St., Los Angeles, Cal.

### AUSTIN BROS.

### IRON, STEEL, MACHINISTS AND BLACKSMITH SUPPLIES

Iron Pipe, Oil Cans, Lubricators, Belting, Packing,  
Lacing, Asbestos Covering, Steam and Water Gauges,  
Shovels and Pick, Fairbanks Scales, Brass and  
Iron Steam Fittings, Etc., Etc.

Stockton, Cal.

# LOS ANGELES SEWER PIPE ASSOC'N.

MANUFACTURERS OF  
Fire Brick, All Fire Clay Products,  
Milled Fire Clay, etc.

For Fire Boxes, Lime Kilns, Furnaces and Smelters.

Also Dealers in English Fire Brick

Special Facilities for Supplying Assayers and the  
Trade of the Southwest.

649 and 651 S. BROADWAY,

LOS ANGELES, CAL.

## PATENTS!

TOWNSEND BROTHERS  
SOLICITORS  
OF PATENTS

Patents on Inventions secured in all countries,  
Copyrights, Trade Marks and Labels,  
Office, 9, Downey Block.

Telephone 347. Los Angeles, Cal.

# GOLD

—AT—

## CRIPPLE CREEK.

The heart of the Mining District  
is reached by the Midland Ter-  
minal Railway, which is in the  
direct connection of the

Atlantic and Pacific Railroad  
Southern California Railway

Through Palace Sleeping Cars and Through  
Tourist Sleeping Cars run every day from  
both San Francisco and Los Angeles to La  
Jolla, Colorado, where immediate connection  
is made for the

### GOLD DISTRICT

Through Tickets and Sleeping Car Reservations  
can be obtained at the Ticket Office of  
the Santa Fe Route

644 Market St., San Francisco  
24 and Spring Sts., Los Angeles

## FIRST-CLASS PRINTING

### LOWEST PRICES

We have a well-equipped power  
printing plant, capable of all classes  
of work from an ordinary handbill  
to a fine half-tone pamphlet.

Certificates of stock for mining  
and other corporations executed  
in first-class style.

Our rates are low and we request  
the favor of a trial order.

Orders by mail solicited and given  
prompt and careful attention.

Address:

Commercial Printing House,

209 SOUTH BROADWAY,  
TEL. 311. LOS ANGELES, CAL.

### DENVER PUBLIC --- SAMPLING WORKS,

M. E. SMITH, PRESIDENT

ORES SOLD ON THE  
PUBLIC MARKET. Denver, Colo.

## WASHBURN & MOEN MFG. CO.

# WIRE

# ROPE AND WIRE

OF EVERY DESCRIPTION

PACIFIC WORKS

SAN FRANCISCO

## Attention Mining Men!

### J. MAIT'S DRY GOLD SAVER

Manufactured and Exhibited at

625 Howard Street,

San Francisco, Cal.

Dry Gold Saved as EASILY as the COARSE. NO WATER required for Cleaning up. We save 95 per cent. Come and witness a test on dry ground. Capacity of Standard Machines 16 Tons. Weight 112 lbs. Price \$90.00; First-Class Material Used Throughout. Capacity of Small Machine 8 Tons; Weight 80 pounds; Price \$80.00. Machines are easily Taken Apart to be packed or carried anywhere. We build Machines to any size—power or hand. Orders promptly attended to. Call or write for Circulars.

F. GOTTFRIED, General Manager and Manufacturer,  
625 Howard Street, San Francisco, Cal.

### HOME MANUFACTURE

#### FOWLER'S

Fossil and Asbestos Sectional Covering

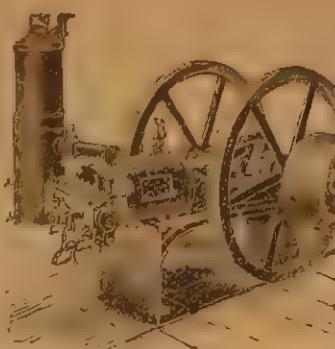
As a Non-Conductor, Unequalled.  
Special Rates for Steam Boilers  
and Drums.



G. C. FOWLER.

656-58 HOWARD STREET, SAN FRANCISCO.

# Cheap Power!



Save Money by Using

—THE—

### “DANIEL BEST” Crude Oil Engine

This Engine can be operated on either Crude Oil, Distillate, Gasoline, or Kerosene. IT IS THE

CHAPPEST POWER ON EARTH and is not tied to any one kind of Oil, but can use any kind

that will make gas and is not handicapped by being compelled to use a certain Oil. Do not

forget this when in need of an Engine.

We guarantee our Engines to work perfectly on California Crude Oil, or Distillate, or any other kind of gaseous Oil; we however prefer CALIFORNIA CRUDE OIL, from Coalings, Fresno County, for the reason that gas from Crude Oil will give more power from the number of feet of gas used than from any other Oil and it is also a natural Lubricant as well, the valves being always Lubricated, clearly to prevent them from sticking, thus assuring greater durability of the working parts than it otherwise would be in using dry gas. And another advantage we claim is that danger from explosions is reduced to a minimum, there being no accumulation of gas but is used by the Engine as fast as it is generated and hence is absolutely safe. The following is a test that we made with one of our Five-Horsepower Crude Oil Engines running ten hours on the different gas oils:

Cal. Crude Oil... 10 grav.,  $7\frac{1}{2}$  galls. at 6c. \$ .37 $\frac{1}{2}$   
Distillate... 10 "  $7\frac{1}{2}$  " 8c. .60  
Dom. Coal Oil... 10 "  $7\frac{1}{2}$  " 12 $\frac{1}{2}$ c. 98 $\frac{1}{2}$   
Gasoline... 74 "  $8\frac{1}{2}$  " 15c. 1.31 $\frac{1}{2}$   
City Gas... 1000 feet, 2.00

We manufacture all sizes from two-horse power up, and will guarantee that our Engines will run cheaper and are more simple in construction, have fewer parts and hence are more durable than any other Gas Engines on the market. Seeing is believing; don't take our word for it, but come and investigate for yourselves. You can always see one in operation at our works. We will be pleased to show you our Engines. Our Engines are specially adapted for running well and driving machinery—in fact, for any kind of power desired, we are the pioneers and first inventors of Crude Oil and Distillate Engines. WE ALWAYS LEAD AND NEVER FOLLOW. Send for Catalogue and Price List of the only genuine Crude Oil and Distillate Engines made.

### The Best Manufacturing Co.

San Leandro, Cal.

### METAL MARKET.

#### New York Quotations

	SILVER	COPPER	LEAD
Mar. 16	65 $\frac{1}{2}$	12.00	10
17	61	12.00	10
18	6.5 $\frac{1}{2}$	12.00	10
19	6.5	12.00	10
20	62 $\frac{1}{2}$	12.00	8.00
21	61	12.00	8.00
22	61	12.00	8.00
23	61	12.00	8.00
24	62 $\frac{1}{2}$	12.00	8.00
25	62 $\frac{1}{2}$	11.90	8.00
26	62 $\frac{1}{2}$	11.80	8.00
27	62 $\frac{1}{2}$	11.80	8.00
28	61	11.75	8.00
29	61	11.75	8.00
30	61 $\frac{1}{2}$	11.75	8.00
31	61 $\frac{1}{2}$	11.75	8.00

### MINING STOCK QUOTATIONS

#### BOSTON

Allouez	80	Franklin	11 00
Atlantic	28 00	Kensarge	18 00
Boston & Mont'.	124 00	Oscoda	85 00
Buite & Boston	18 00	Quincy	112 00
Cal. & Helca	370 00	Tamarack	125 00
Centennial	9 00	Wolverine	10 50

#### COLORADO SPRINGS STOCKS

Acton	01	Inoley	00 50
Alamo	00	Ironclad	08 40
Anaconda	00	Isabela	19 10
Argentum Juniper	27 50	Isabella Stamp	
Bangkok Corn Bells	02 50	Jack Pot	
Bankers	00	Jefferson	
Ben Hur	00	Keystone	
Cal. & Minot	00	Key	
Cerro & Mantos	04	Mollie Gibson	08 40
Crescent & C C	01	Monarch	05 00
Crocans	01	Mount Rosa	05 00
C C Consolidated	11 00	Orde	05 00
Des Moines	03 00	Orphan Bell	11 00
Foothills Rawlins	07	Pharmacist	05 00
Favorite	10	Portland	05 00
Franklin	01 00	People's	03 00
Garfield Grouse	07 00	Sacramento	03 00
Golden Eagle	06 00	Specimen	03 00
Golden Pheas	36	Star of the West	00 00
Gold & Globe	18	Trachyte	03 00
Gold Standard	05 00	Union Gold	24 00
Humboldt	03	Virginia M	06 00
Ingham C	15	Work	08 50

#### DENVER STOCK REPORT

Acton	01	Elton	1 40
Alamo	00 50	Eureka	00 00
Anaconda	00	Garfield Grouse	07 50
Arcaida	00 04	Golden Pheas	35
Consolidated	05	Goldsmith	00 00
Argentum Juniper	20 00	Gold Standard	05 00
Bankers	02 50	Isley	00 00
Bangkok-C-Bell	02 50	Iron Clad	00 00
Bunkers	00 04	Isabelle	47
Ben Hur	00 02	Jack Pot	07
Bob Lee	02	Jefferson	11 00
Baldwin & C. C.	01 00	Mollie Gibson	25
Chimbaraso	01 00	New Zealand	06 00
C. K. N.	02 00	People's	03 00
Colo. C. & M.	04	Pharmacist	13 00
C. C. Cos.	01		

#### HELENA, MONTANA

Am Den & M Co	95	Granite Mount	1 25
Bald Butt	2 25	Hope	1 60
Benton Group	10	Iron Mountain	40
Bi-Metallic	1 75	Moulton	40
Combination	35	Potosi	00

#### NEW YORK

Crown Point	19	Sierra Nevada	25
Con. Cal. & Va.	1 00	Standard	1 25
Gould & Curry	30	Union Con.	30
Homestake	80 60	Iron Silver	40
Homestake	80 60	Quicksilver	2 00
Ontario	10 60	Bulwer	26
Ophir	71	Yellow Jacket	25
Plymouth	20	Deadwood	40

#### SAN FRANCISCO

Alta	05	Mono	15
Beischer	18	Neela Queen	60
Best & Bolcher	72	Ophir	71
Bole Cos.	55	Vinton	30
Chollar	65	Savage	39
Con. Cal. & Va.	1 00	Sierra Nevada	35
Crown Point	19	Union Con.	30
Hale & Cross.	80	Utah	07
Mexican	40	Yellow Jacket	25
Gould & Curry	30	Bulwer	25

#### ST. LOUIS

American Nettle	25	Elizabeth	20
Granite Mt.	1 20	Leo	3
Adams	1 10	Hope	1 40
Bi-Metallic	1 75	Small Hopes	00

#### SALT LAKE CITY

Ajiaz	70	Horn Silver	2 22
Alliance	10	Little Pittsburgh	23
Am. Nat. G's.	00 04	Lucky Bill	20
Anchor	1 20	Mammoth	2 05
Bogart	07 50	Mercur	7 05
Bull, Beck	9 00	Ontario	10 60
Cont. Burea	62 60	Rover	47 10
Dalton	20	Silver King	18 60
Daly	5 60	Snowy Con	15
Daly West	0 00	Swansea	2 40
Four Aces	19	St. Swansea	1 00
Gatica	1 10	Tetro	05
Goyer	1 45	Uta	07

#### MEXICO

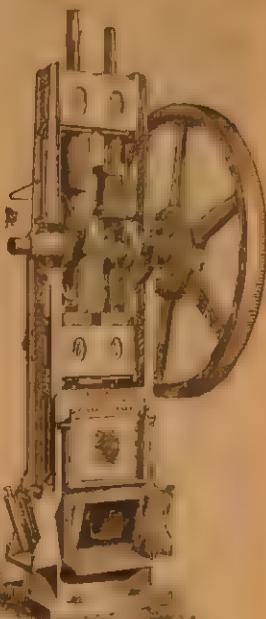
Name of Company	State	Price
Angostura	Guastaju	\$ 800
Asturias y Anexas	Zacatecas	200
Cerro Colorado	Chihuahua	10
Concepcion y Anexas	S. Luis Potosi	180
El Oro	Guadalajara	00
do, pre	"	00
Luz de Borda	Micatlan	30
do, Free stock	"	30
Luz de Maravillas	Hidalgo	160
Real del Monte	"	1,100
Rosario y Anexas	Durango	50
do, pre	"	50
San Kefal del Oro	Guastaju	80
Sta. Gari y Anexas	Hidalgo	187
do, Free Stock	"	30
Sta. Maria de la Paz	S. Luis Potosi	160
Tlaxiango	Puebla	10
Zomulchabuan (gold)	Vera Cruz	100
Zona Mio de Pozos	Guastaju	40

NOTE—The above Mexican stocks are figured on the basis of Mexican silver



# HAMMOND MANUFACTURING CO.

MANUFACTURERS OF  
**STAMP MILLS — CONCENTRATORS**  
 And all Classes of  
**MINING MACHINERY**



**Wire Rope Tramways** with Automatic Loading Apparatus permitting the ore bins to be permanently open.

Specialty made of the Improved, Iron Frame Self-Contained Stamp Mill, the greatest success of the day in reduction of ore to pulp. A great boon to mill builders in countries where timber is plenty and therefore a greater boon to those who have no timber from which to draw the huge pieces needed in old style mills. We claim for this mill.

- 1st. It is no longer a new thing, but well tried and its durability proven
- 2d. Cheaper than the Wooden Frame Mill when ready to run
- 3d. Saves a great amount of delay in erection and it can be set up in as short a time as a self contained engine
- 4th. Saves much space

We call the attention of Prospectors to our Self Contained Two Stamp Mill.

We have inaugurated a system of amalgamation and Concentration which renders both much more satisfactory and cheapens the cost of concentration by a great saving in the repairs to the complicated machinery now used.

Parties intending erecting mining plants would do well to investigate our mills. We build any mill desired and will deliver F. O. B. Steamer or cars at San Francisco, California.

We are prepared to furnish parties desiring small plants in localities where fuel is extremely expensive, with mills coupled up and ready to run with gasoline engines, guaranteeing the efficiency of both engine and mill.

Write us for Catalogues and Estimates

## HAMMOND MANUFACTURING COMPANY

### THE PACIFIC AMALGAMATOR



This machine is guaranteed to do the work represented and will save coarse or fine gold equally well. The weight of the standard size for mill is 600 lbs. and for placer use 1000 lbs. The machine can be shipped in sections, no piece weighing over 100 lbs., this makes it by far the cheapest for use in mountainous districts where it is necessary to use pack animals for transportation. The standard size machine has seventy square feet of amalgamating surface constructed in such a manner as to give the greatest contact without scouring the plates.

This machine can be opened and the process of amalgamation be seen at any time while in operation.

Send for further particulars to

**The Pacific**  
**Mining Machinery Company**

127 FIRST STREET, SAN FRANCISCO, CAL.

JOHN P. CULVER, Civil Engineer.

FRANK H. JACKSON, Mining Engineer

J. K. EVELETH

V. H. M. MACLYMONT

JOHN P. OULVER & COMPANY,  
 ASSAYERS, MINERALOGISTS and MINING ENGINEERS.

145 South Broadway, LOS ANGELES, CAL.

EVELETH & MACLYMONT, ASSAYERS

Assays and Analyses of Ores. Prepaid Mill-tests by 2-Stamp Mill. Concentrating Plant  
 10 Anno Street, San Francisco (Opposite Palace Hotel)  
 Cable Address: Villemont, San Francisco

Telephone Main 788

School of Practical, Civil, Mechanical, Electrical and Mining Engineering  
 Surveying, Architecture, Drawing and Assaying  
 633 MARKET ST. SAN FRANCISCO, CAL.  
 A. VAN DER NIELLEN, President  
 Assaying of Ores, Gold, Bullion and Chlorination Assay, \$5.00 per Assay. Full Course of Assaying, \$50. Established 1864.  
 Good for Circular.

**BELTING Of all Descriptions,**  
 FOR MILLS MINES AND SMELTERS

Specialties — DYNAMO WATER PROOF, RAWHIDE AND SEWED  
 .... BELTING.

**Fred R. Cook,**  
 308 Mission Street, San Francisco, Cal.

**VON SCHULZ & LOW**  
 ASSAYERS, CHEMISTS, and BULLION DEALERS.

PO Box 1537, 1240 Market St., DEXTER, CAL.  
 Prices for Specimen assays: Gold, Silver, Lead or Copper, \$1.00 each. One cent for each three lbs. A simpler price list and a copy of mailing list will be furnished on application.

## W. W. MONTAGUE &amp; CO.

MANUFACTURERS OF

Riveted Sheet Iron and Steel

## WATER PIPE

For Hydraulic Mining Power Plants and Mills.

Iron Cut, Punched and Formed for Making Pipe on the Ground Where Required to Save Freight.

GALVANIZED IRON  
Air Pipe, Concentrator Rolls, Water Tanks  
SAN FRANCISCO, CAL.THE BI-METALLIC ASSAY OFFICE  
AND CHEMICAL LABORATORY.

Assaying in all its branches. Determinations accurately made.

R. A. PEREZ, E. M., Mgr.,

FORMERLY: Chief Assayer El Paso Smelting Works, El Paso, Tex.  
Assistant Chemist Consolidated Kansas City Smelting and Refining Co., Argentine, Kansas.

(Prompt Returns.)

124 S. MAIN ST., LOS ANGELES CAL

\$82,480,000

Paid in Dividends by Utah Mining Stocks

Weekly Market Letter on Application  
Quotations by Wire or MailJAMES A. POLLACK, Mining Stock Broker,  
SALT LAKE CITY, UTAH.KENNETH DONNELLAN  
Stock & Mining BrokerWeekly quotations furnished on request  
Reference: Any Bank or Banker  
in Salt Lake City, Utah.

## UNION HARDWARE AND METAL CO.

DEALERS IN

Boiler Tubes, Iron Pipe and Fittings  
RAILROAD, MILLING, MINING and FOUNDRY SUPPLIES

214 and 216 N. Los Angeles Street

Los Angeles, Cal

THE WILSON  
Forged High Grade Steel  
Shoes and DiesGuaranteed to Wear Longer and Prove Cheaper than any others.  
Made by use of Special Appliances. Patented Aug. 16th, 1893.

— Made only by —

WESTERN FORGE AND ROLLING MILLS,  
St. Louis, MissouriJOSHUA HENDY MACHINE WORKS  
SOLE AGENTS  
38 to 44 Fremont Street, San Francisco, Cal.

## TANKS

OF EVERY DESCRIPTION

FOR

Mines, Mills and Cyanide Plants  
Patent Non-Shrinking Water TanksThe only Tank that will stand the Desert  
and Hot Climate.Write for Catalogue and Estimate on any kind  
of Tank Work

Pacific Tank Co.

33 BEALE ST., SAN FRANCISCO



## To Gold Miners!

Silver Plated Copper AMALGAM PLATES  
FOR Saving Gold.GOLD REMOVED FROM OLD PLATES AND REPLATED  
Old Plates Bought. Get our Reduced Rates. Thousands  
of orders filled. Twenty-six Medals Awarded.

San Francisco

GOLD, SILVER and NICKLE Plating Works

533 and 535 Mission Street, San Francisco, Cal.

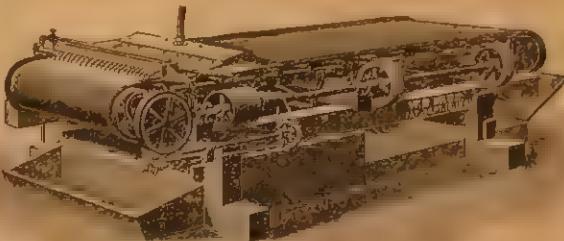
Telephone, Main 5931.

E. G. DENNISTON, Proprietor  
Every description of work plated. Send for Circular.

## TRUE ORE CONCENTRATOR

Over 4,200 in Actual Use

Manufactured under Patents of April 27, 1880 Sept. 18, 1883; July 24, 1885; and March 31, 1891



It can be safely stated, without going into a description of several new and untried concentrators that have lately come into the market, that where sulphurates are of such value as to make close saving necessary, the True Vanner is always used. It is the only endless belt concentrator in the market that can be relied on to handle all classes of ores, and give universal satisfaction. (In all competition of concentrators the True Vanner is taken as the Standard machine of the world, and a comparison made by it. There have been over 400 of these machines sold, 1700 having been sold on the Pacific Coast alone.) They are in use in every part of the world where mining is carried on, and in all cases they are giving perfect satisfaction. From time to time valuable and important improvements have been made in this machine to increase its capacity and durability, and particular attention is called to the Patent Lip Flange for the rubber belt, which does away with nearly all the strain in tracking, as in the old style of flange, making the life of belt more than double that of other style belts in the market. The lip of flange bends outward in going over the large end rolls, thereby distributing the strain in the acid rubber, and bringing virtually no strain either at the edge or at the base of flange, as is the case in all belts with a raised edge.

Price of 4-foot wide Plain Belt True Vanner	• \$100 f. o. b.
" 6-foot wide Plain Belt "	• \$100 f. o. b.

For any information, pamphlets, circulars or testimonials, call on or address

JAS. S. BROWNELL, Western Agent TRUE VANNING MACHINE CO  
Successor to ADAMS & CARTER

182 Market Street, San Francisco

F. M. ENDLICH, Late Mineralogist Smithsonian Institution

GEO. F. HOYT,  
U.S. Deputy Mineral Surveyor

ENDLICH &amp; HOYT.

## Mining Engineers and Metallurgists

Mines and Processes examined and reported on. Specialties.—Treatment of Low-grade Ores, Concentration, Cyanide Leaching, Designing, and erection of suitable plants for refractory ores. Mines bought and sold. Only properties that will stand closest investigation considered. Surveying and mapping, Assays and Analyses.

Correspondence Solicited.

Office: 201 Bullard Block, Los Angeles, Cal.

## INCORPORATED MINES PAYING DIVIDENDS.

NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of last Dividend	Total Amount Paid in Dividends		Kind of Mineral Produced
							Per Share	Per \$1000	
Acton Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	Dec. 1896		\$ 100,000	Q.
Adams	Colorado	150,000	1,500,000	\$ 5	\$ 0.66	October 1896		\$ 100,000	S.
Alaska, Trendwell	Alaska	200,000	5,000,000	25	\$ 10	January, 1897		\$ 1,000,000	G.
Alaska, Mexican	Alaska	200,000	1,000,000	5	\$ 10	January, 1897		\$ 100,000	G.
Anacosta	Montana	200,000	2,000,000	2	\$ 10	January, 1897		\$ 20,000	
Anchorage Island	Colorado	800,000	800,000	1	\$ 10	Jan. 1897		\$ 80,000	G.
Atlantic	Michigan	10,000	1,000,000	1	\$ 10	Dec. 1896		\$ 10,000	
Bald Butte	Montana	250,000	250,000	1	\$ 10	June 1896		\$ 250,000	S. L. G.
Bangkok C. Bell	Colorado	600,000	600,000	1	\$ 10	Jul. 1896		\$ 600,000	S. L. G.
Big Six	Colorado	80,000	500,000	1	\$ 10	May 1896		\$ 80,000	G. S.
Boston & Montana	Montana	10,000	1,000,000	2	\$ 10	Dec. 1896		\$ 20,000	G. S.
Bullion Bank and Champ.	Utah	100,000	1,000,000	10	\$ 20	Jan. 1897		\$ 200,000	G. S.
Cariboo	British Col.	800,000	800,000	1	\$ 20	Dec. 1896		\$ 125,000	G.
C. O. D.	Montana	500,000	600,000	1	\$ 20	March 1896		\$ 25,000	G.
Calumet & Hecla	Michigan	100,000	2,000,000	2	\$ 20	May 1897		\$ 200,000	G.
Centennial Europe.	Utah	80,000	1,500,000	50	\$ 100	Jan. 1897		\$ 1,800,000	S. I.
Champion	California	3,400	34,000	10	\$ 10	August 1896		\$ 34,000	G.
Consolidated, California and Virginia	Nevada	210,000	21,000,000	100	\$ 25	March 1895		\$ 3,500,000	S. G.
Copis	Nevada	100,000	10,000,000	100	\$ 25	Feb. 1895		\$ 250,000	
Copper Queen Consolidated	Arizona	200,000	2,000,000	10	\$ 25	June 1896		\$ 250,000	
Daly	Utah	150,000	3,000,000	20	\$ 25	August 1896		\$ 375,000	S. I.
Deadwood Terra	Dakota	200,000	5,000,000	25	\$ 50	August 1896		\$ 1,000,000	S. I.
De Lamar	Idaho	400,000	2,000,000	5	\$ 25	October 1896		\$ 1,000,000	S. I.
Derbe II Gravel	California	100,000	10,000,000	100	\$ 50	March 1894		\$ 500,000	S. I.
Dulton and Lark	Utah	2,500,000	2,500,000	1	\$ 00	August 1896		\$ 2,500,000	S. I.
Elkhorn	Montana	200,000	1,000,000	5	\$ 00	June 1895		\$ 1,000,000	S. I.
Elkton	Colorado	500,000	500,000	1	\$ 02	Jan. 1897		\$ 10,000	G.
Enterprise	Colorado	500,000	2,500,000	5	\$ 25	June 1893		\$ 125,000	S.
Florine	Montana	500,000	2,500,000	5	\$ 01	Jan. 1897		\$ 125,000	S.
Franklin	Michigan	40,000	1,000,000	25	\$ 200	January 1894		\$ 200,000	S. I.
Galeena	Utah	100,000	1,000,000	10	\$ 05	Jan. 1897		\$ 100,000	S. I.
Garfield Grouse	Colorado	1,200,000	1,200,000	1	\$ 01	Dec. 1896		\$ 120,000	S.
Golden Eagle	Colorado	1,000,000	1,000,000	1	\$ 01	Sep. 1896		\$ 100,000	S.
Golden Fleece	Colorado	600,000	800,000	1	\$ 01	Dec. 1896		\$ 60,000	S.
Gold Coin	Colorado	200,000	1,250,000	5	\$ 10	Feb. 1897		\$ 200,000	S.
Gold and Globe	Colorado	750,000	750,000	1	\$ 3-10	August 1896		\$ 225,000	S.
Granite Mountain	Montana	400,000	10,000,000	25	\$ 20	July 1892		\$ 1,000,000	S.
Great Western	California	50,000	5,000,000	100	\$ 10	November 1893		\$ 388,368	Q.
Hecla Consolidated	Montana	30,000	1,500,000	50	\$ 50	January 1897		\$ 1,500,000	S. L. G.
Helena & Frisco	Idaho	500,000	2,500,000	5	\$ 04	August 1890		\$ 475,000	S. L.
Homestake	Dakota	125,000	12,500,000	100	\$ 25	Jan. 1. 1897		\$ 1,118,750	G.
Hope	Montana	100,000	1,000,000	10	\$ 10	February 1897		\$ 100,000	S.
Horn Silver	Utah	400,000	10,000,000	25	\$ 12	January 1896		\$ 1,250,000	S. L.
Iowa	Colorado	1,000,000	810,000	1	\$ 01	Dec. 1896		\$ 80,000	G.
Iron Mountain	Montana	500,000	5,000,000	10	\$ 08	Nov. 1896		\$ 400,000	S.
Istebbia	Colorado	2,250,000	5,000,000	100	\$ 01	Sep. 1896		\$ 202,500	G.
Kearsarge	Michigan	40,000	1,000,000	25	\$ 100	Dec. 1896		\$ 120,000	G.
Kennedy	California	100,000	10,000,000	1	\$ 48	August 1895		\$ 1,788,000	G.
Leadville Consolidated	Colorado	400,000	4,000,000	10	\$ 08	February 1893		\$ 316,000	S. L.
Maid of Erie	Colorado	600,000	3,000,000	5	\$ 02	November 1895		\$ 720,000	S. L. G. C.
Mayflower	California	60,000	1,200,000	20	\$ 10	December 1895		\$ 120,000	G.
Minneota	Minnesota	165,000	18,500,000	100	\$ 150	July 1896		\$ 3,240,000	L.
Mollie Gibson	Colorado	1,000,000	5,000,000	5	\$ 05	January 1895		\$ 4,080,000	S.
Montana Lt.	Montana	680,000	3,800,000	5	\$ 06	October 1895		\$ 3,890,637	G. S.
Moose	Colorado	600,000	600,000	1	\$ 01	January 1896		\$ 180,000	G.
Morning Star	California	2,400	240,000	100	\$ 700	October 1895		\$ 448,400	G.
Moulton	Montana	400,000	2,000,000	5	\$ 05	February 1894		\$ 400,000	S. G.
Mercur	Utah	200,000	5,000,000	25	\$ 12	Jan. 1897		\$ 600,000	G.
Mammoth	Utah	400,000	10,000,000	25	\$ 60	Nov. 1896		\$ 1,500,000	G. S. O.
Moon Anchor Gold	Colorado	600,000	600,000	1	\$ 01	July 1896		\$ 24,000	G.
New Elkton	Colorado	300,000	1,500,000	5	\$ 24	Sep. 1896		\$ 72,000	G.
New York & Hon. Rosalie	Central A.	150,000	1,700,000	10	\$ 10	Jan. 1890		\$ 150,000	S.
Mt. Rosa	Colorado	1,000,000	1,000,000	1	\$ 00	Oct. 1890		\$ 100,000	G.
Napa	California	100,000	700,000	7	\$ 10	January 1897		\$ 800,000	Q.
North Star	California	100,000	1,000,000	10	\$ 50	June 1893		\$ 450,000	G.
Nugget	Colorado	1,000,000	1,000,000	1	\$ 00	Jan. 1896		\$ 10,000	G.
Omaha Consolidated	California	24,000	2,400,000	100	\$ 15	July 1894		\$ 370,000	S. L.
Ontario	Utah	150,000	15,000,000	100	\$ 10	January 1897		\$ 1,500,000	S. L.
Oseola	Michigan	50,000	1,250,000	25	\$ 100	February 1897		\$ 125,000	G.
Pacific Coast Borax	California	20,000	2,000,000	100	\$ 100	July 1893		\$ 220,000	B.
Parrot	Montana	230,000	2,300,000	10	\$ 10	June 1894		\$ 1,022,000	C.
Pumas Eureka	California	140,000	1,400,000	10	\$ 18	October 1893		\$ 2,890,295	G.
Portland	Colorado	3,000,000	3,000,000	1	\$ 01	January 1897		\$ 900,000	G. S.
Quicksilver Prof.	California	43,000	4,300,000	100	\$ 28	June 1891		\$ 1,823,911	Q.
Quincy	Michigan	60,000	1,250,000	25	\$ 00	February 1897		\$ 90,000,000	
Red Cloud	Idaho	200,000	1,000,000	5	\$ 10	December 1892		\$ 150,000	S. L.
Reo Aspen	Colorado	1,000,000	5,000,000	5	\$ 02	November 1894		\$ 525,000	S.
Sierra Buttes	California	222,500	2,225,000	10	\$ 12	October 1893		\$ 1,550,000	Q.
Silver M.	New Mexico	500,000	500,000	1	\$ 405	December 1891		\$ 300,000	S.
Small Hopes Consolidated	Colorado	250,000	5,000,000	20	\$ 10	March 1898		\$ 2,275,000	S.
Standard	California	100,000	10,000,000	100	\$ 10	June 1893		\$ 3,771,159	G. S.
St. Joseph	Missouri	250,000	2,500,000	10	\$ 26	Dec. 1895		\$ 2,524,000	L.
Silver King	Utah	160,000	3,000,000	20	\$ 26	Jan. 1897		\$ 90,000	S. L. G.
Smoky Hill Union	Colorado	50,000	5,000,000	100	\$ 100	October 1896		\$ 100,000	G. S.
Tonopah	Colorado	200,000	200,000	10	\$ 20	March 1898		\$ 410,000	G.
Tamarack	Michigan	60,000	1,250,000	25	\$ 300	April 1894		\$ 4,770,000	G.
Trinity River	Colorado	500,000	500,000	1	.....	.....		\$ 50,000	G.
Union	Colorado	1,200,000	1,200,000	1	\$ 01	June 1898		\$ 73,000	S.
United Verde	Arizona	300,000	3,000,000	10	\$ 25	December 1893		\$ 882,500	C.
Utah	Utah	100,000	1,000,000	10	\$ 02	Nov. 1896		\$ 175,000	G. S.
Victor	Colorado	200,000	1,000,000	5	\$ 10	Dec. 1898		\$ 700,000	G.
War Eagle	B. C.	500,000	500,000	1	\$ 00	October 1898		\$ 187,000	S.
Yankee Girl	Colorado	260,000	1,300,000	5	\$ 25	July 1891		\$ 830,000	S.

S. Silver.

G. Gold.

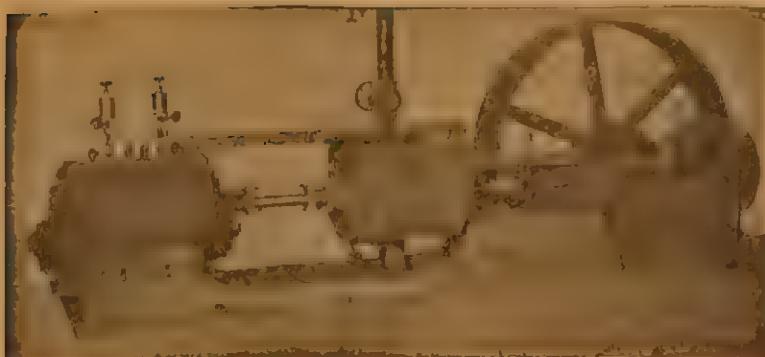
L. Lead

C. Copper

Q. Quicksilver

I. Iron.

B. Borax.



AIR COMPRESSOR

# FULTON ENGINEERING — AND — SHIPBUILDING WORKS

## MINING AND MILLING MACHINERY

Adapted to every description of Mining and Milling

Office and Branch Works,

213 First street, San Francisco, Cal

**C. DUCOMMUN,**

300-302 N. MAIN STREET,

LOS ANGELES

**Assayers Materials,  
Mine and Mill Supplies**

Dixon's Black Lead Crucibles, Denver Fire Clay Crucibles, Muffles, Scorifiers, etc.; Quicksilver, Drill Steel, Retorts, Mortars, Gold Pans, Drilling Hammers, Drifting Picks, Horn Spoons and Shovels.

**THE JOHANNESBURG SAMPLING WORKS**

Purchasers of Gold, Silver, Copper and Lead Ores and Concentrates

Cash Returns Made Within Twenty-four hours after receipt of Ore

CHAS. R. WORES, MANAGER,

Johannesburg, Cal

**SHEPARD, WHEELER &  
RHODES**Mining Engineers and U. S. Deputy  
Mineral Surveyors.

Have a Complete and Accurate Map made from  
Actual Surveys, showing all Mining Claims  
in the Randburg Mining District,  
Price, \$10.00

Randburg, Cal.

**RANDSBURG  
A. J. PETTER.**MINING ENGINEER AND ASSAYER  
Examiner and Dealer in Mines. Have  
Several properties listed for sale. Cor-  
respondence solicited with intending purchasers.**H. L. NELSON & CO.****Real Estate and Mining Broker**Abstract Bureau & Notary Public  
Correspondence solicited,

RANDSBURG AND JOHANNESBURG, CALIF.

**Nolan & Smith  
Mining • Brokers**Capital Furnished for Purchase of Mines  
and Prospects.

Also for Development of those that have merit

Send description and Sampled

228 W. SECOND St., LOS ANGELES, CAL.

**HALLIDIE  
PATENT  
ROPEWAY**  
— FOR THE —

Transportation of Ore, Fuel and other  
material, has been erected by us all over  
the country and is the most economical  
and efficient method known. Nothing  
to get out of order; has always given  
satisfaction.

**California Wire Works**  
[LICENCIERS]

Office, 8 Pine Street, San Francisco, Cal.



Mention the Journal.

**We Manufacture**

**STAMP MILLS,  
CRUSHERS,  
CONCENTRATORS,  
ENGINES,  
PUMPS, HOISTS,**



Stockton Gas Engine, Water Wheels, Wood, Iron, and  
Clutch Pulleys, and general repairing of all kinds  
of Wood and Iron. All work done in our  
own Shop. Estimates furnished  
for Plants Complete.

Best equipped works in California, outside of  
San Francisco.

CORRESPONDENCE SOLICITED

**Matteson  
Manufacturing Co.**

STOCKTON, CALIFORNIA.

**It Pays To Advertise in THE JOURNAL.**

**WIRE  
TRAMWAYS**

\* Ropeways,  
Incline Planes,  
and Railways.

Hoisting Apparatus, Patent Grip Pulleys, Transmission of Power by Wire Ropes; 25 years experience; Send for Ropeway Pamphlet.

**California Wire Works**

WORKS

332 Bay Street, San Francisco, Cal.

## NEW IMPROVED McGlew Ore Concentrator

IN USE IN  
California  
Oregon  
Washington  
Texas  
Arizona Territory  
Mexico  
Central America  
Australia



Patented  
Sept.  
1893

We guarantee these machines to handle an average of ten tons per 24 hours, and to do cleaner and closer work than any OTHER CONCENTRATOR in use.

**Price, \$300 Net Cash, f. o. b.**  
*Write for Descriptive and Testimonial Circulars*  
**THE McGLEW ORE CONCENTRATOR CO.,** 131 First Street, San Francisco, Cal.

## FAIRBANKS Ore and Bullion Scales



Ore Cars, Steam Pumps, Fairbanks  
Gas Engine.  
SCALES OF ALL SIZES AND CAPACITIES  
We make a Specialty of

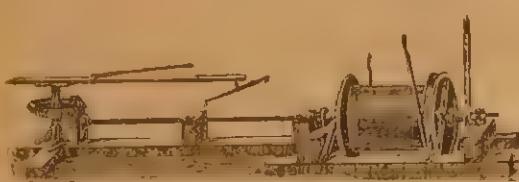
Scales for Mines, Mills and Smelters.

**Fairbanks, Morse & Co.**

310 Market St., San Francisco, Cal.  
210 North Los Angeles Street, Los Angeles, Cal.  
Correspondence Solicited.

## KROGH MANUFACTURING CO.

Successors to the San Francisco Tool Co.'s Mfg Dept., builders of *Engines and Centrifugal Pumps* for Mining and Water Works. These pumps can be operated by horse power, water power, steam, gasoline or electric motors.



*Horse Power Mine Holes.*  
also manufacture Cyanide Tanks and Centrifugal Sand Pumps for filling and discharging them. The Pumps work the tailings to perfection and are made to handle small or large quantities.

**OFFICE AND WORKS**  
51 Beale St., and 9 to 17 Stevenson St., San Francisco, Cal.

**J. P. TAGGART,**  
**Mines and Mining**

Properties reported on in all parts of the world.  
Correspondence Solicited.

201 BULLARD BLOCK, LOS ANGELES, CAL.

## C. A. LUCKHARDT & CO.

Nevada Metallurgical Works, *Established 1899*  
71 AND 73 STEVENSON STREET, SAN FRANCISCO, CAL

### Assaying, Analyses, Sampling.

*Practical Working Tests of Ores by all Processes*  
**STAMP MILL AND CONCENTRATOR IN OPERATION ON PREMISES**

**N. OHLANDT & CO.**

MANUFACTURERS OF

### Best Quality of BONE ASH for Assayers.

Our Goods are used in all parts of the United States and Mexico  
EXTRA No. 1 and No. 2 CORRESPONDENCE SOLICITED  
327 MARKET STREET, SAN FRANCISCO, CAL.

## MINING PIPE



**STEEL OR IRON.**—We make pipe of either, but recommend STEEL, it being superior to iron in many particulars and inferior to none.

WRITE FOR CIRCULARS OF  
**THE TRAUX PATENT AUTOMATIC ORE CARS.**  
**SCHAW, INGRAM, BATCHER & CO.,** Hardware Merchants,  
SACRAMENTO, CALIFORNIA.

## The Harrington & King Perforating Co.

METALS PERFORATED AS REQUIRED  
FOR MINING SCREENS OF ALL KINDS FOR USE IN  
Mining and Milling Machinery, Reduction and Concentrating Works  
Steve Coal, Ore Screens  
Stamp Battery Screens  
Standard Sizes Perforated Tin and Brass Always in Stock  
MAIN OFFICE AND WORKS, 214-243 NORTH UNION ST., CHICAGO, ILL.

## Dry Gold Washers

ADAPTED TO PLACER MINING

MANUFACTURED BY  
**F. F. COLLINS,**

MANUFACTURING CO.  
SAN ANTONIO, TEXAS

Send for Catalogue of General Pumping  
and Water Supplies.



# The Mining and Metallurgical Journal



Is the ONLY publication in the SOUTHWEST devoted to the Mining Industry and circulates in every MINING CAMP or place where there is a MINING MILL or SIMELTER in California, Mexico, Lower California, Arizona, New Mexico, Texas, Nevada, Utah and Colorado. It has a LARGER circulation in Southern California, Mexico, Lower California, Arizona, New Mexico and Texas than any other MINING PUBLICATION published and is therefore the best advertising medium for those seeking business with the Mines Mills and Smelters.

**W. H. BIRCH & CO.**

OFFICE AND WORKS, 127-129-131-133-135 FIRST STREET, SAN FRANCISCO, CALIFORNIA

→ Write for a Circular on the ←

**"Birch" Improved TWO-STAMP MILL**

IRON FRAME.

TRIPLE DISCHARGE.

850-LB-STAMPS.

FORGED STEEL SHOES AND DIES.

PRICE, \$450 F. O. B.

**LLEWELLYN IRON WORKS.**

Manufacturers and Dealers In

All Kinds of Mining, Smelting and Milling Machinery, LOS ANGELES, CAL.

**J. C. WINANS**, Sole Agent Peerless Rubber Manufacturing Co.

Winans' Anti-Incur-  
tion Powder, Gould's Anti-  
Fouling, Peerless Rod  
Packing, Etc.; Tubular Gaskets, Vulva-  
rized Fibre Paper Valves, Magnolia Anti-Friction Metal, Tex Packing, Spiral Packing, Square  
Hemp, Peerless Plumbago Sheet, Peerless Rainbow Sheet, Sheet Rubber of all kinds, Scotch Water  
Glass, W. & C. Water Glass Cutters. Deal in and Supply all Packings on the Market, Special Hy-  
draulic Pump Packing, Winans' Pressure Regulator; absolutely automatic. Pronounced by Experts  
the Best Manufactured.

**Engineers' Specialties**

220 FREMONT STREET, SAN FRANCISCO, CAL.

**ANTI-CALORIC STEAM PIPE AND BOILER COVERING**

In canvas JACKETTED SECTIONS and Plastic  
Material Manufactured in San Francisco under  
Patents controlled exclusively by the Co.

**Certificate of Superiority  
Over All other Coverings awarded by  
Mechanics Institute Exhibition 1896**

401 CALIFORNIA STREET,

SAN FRANCISCO, CAL

**EASTERN PRICES BEATEN**IMPROVED FACILITIES, FINEST WORK  
LOWEST PRICES

For Flour and Rice Mills, Grain Separators, Shaker Screens, Gravel  
and Cement, Revolving and Shot Screens, Stamp Batteries,  
Iron, Steel, Russia Iron, American Planish, Zinc, Copper  
and Brass Screens for all uses. Inventor and Manu-  
facturer of the celebrated Slot Barred and Diagonal  
Slot punched Screens.

MINING SCREENS A SPECIALTY  
Mill owners using screens extensively, can contract  
for large supplies at favorable rates. J. W.  
QUICK is the only competent and suc-  
cessful manufacturer of Screens on the  
Coast, having furnished Screens  
to the Principal Mills of

California, Nevada, Alaska, Mexico, Arizona, Central America, Australias and British Possessions.

San Francisco Pioneer Screen Works  
(Established 1860)

221 and 223 FIRST STREET, SAN FRANCISCO.

J. W. QUICK, Prop.

**FULTON ENGINE WORKS****Mining, Milling & Smelting Machinery**

Estimates Furnished on all Classes of Mining Work

P. O. Box 298, STATION "C"

LOS ANGELES, CALIFORNIA

**W. O. ABBOTT, ASSAYER**ASSAYING IN ALL ITS BRANCHES  
CHEMICAL DETERMINATIONS ACCURATELY MADE

TOMBSTONE - - - ARIZONA

**The Puget Sound Reduction Company**  
PURCHASERS OF  
**GOLD, SILVER, LEAD AND COPPER ORES**Special Facilities for Handling ores from the South-West and Mexico  
EVERETT - - - WASHINGTON**MILLWRIGHT AND ENGINEER**Contractor for the Erection of All Kinds of  
Mining and Milling Plants.E. L. HALLAWELL,  
15 and 117 MAIN ST., SAN FRANCISCO, CAL.**SANDERS & JONES**

Analytical Chemists &amp; Assayers

21 W. 2d South Street,

SILVER CITY AND SALT LAKE CITY, UTAH

**Turbine AND CASCADE WATER WHEEL**

Adapted to all Heads from

3 Feet to 2000 Feet



Our experience of 33 YEARS  
building Water Wheels en-  
ables us to suit every require-  
ment of Water Power Plants.  
We guarantee satisfaction.

Send for Pamphlet of  
either Wheel and write  
full particulars.

James Leffel & Co.  
SPRINGFIELD, OHIO, U.S.A.

**Thomson & Boyle,**

310-314 Requena St., Los Angeles, Cal.

— Manufacturers of —

**Sheet Steel Water Pipe**

Water Tanks, Oil Tanks, ORE BUCKETS, ORE CARS,  
Ore Conveyors, Galvanized Air Pipe.  
Blowers and Boilers.

**Sheet Steel Work of All Kinds**

Estimates Furnished on all kinds of Work.

**A. S. CAGWIN, Assayer : and : Mineralogist**Gold and Silver \$2.00, Gold \$1.50  
Copper \$2.50, Lead \$1.50  
Mill Tesus \$1.00.

Fresno, California.

**GOLD MINES!**

In Julian District

SOUTH CALIFORNIA.

I have listed for selling, bonding or  
leasing. Strict investigation invited.  
Letters of inquiry about any mine or  
company answered for \$1. Inclose stamp  
for reply.

B. A. STEPHENS,  
917 F STREET, SAN DIEGO, CAL.**KERN COUNTY ASSAY OFFICE**

H. VINCENT WALLACE.

Graduate Royal School of Mines

BAKERSFIELD, CALIFORNIA

Bakersfield, California&lt;/

## THE MINING AND METALLURGICAL JOURNAL.

## ORE TARIFF.

From Points in Mexico, New Mexico, Texas and Arizona, to El Paso, Pueblo, Denver and Rouses City.

## ATCHISON, TOPEKA &amp; SANTA FE R. R.

FROM	TO	Car Loads, 15 dollars and cents per ton of 2,000 lbs.			
		Ore Concentrates			
		Valuation not to exceed \$50 per ton.	Valuation not to exceed \$50 per ton.	Valuation not to exceed \$50 per ton.	Valuation not to exceed \$50 per ton.
Guanajuato, Mex.	El Paso	10.00	1.50	3.50	...
	Pueblo	10.50	6.00	7.00	...
	Denver	15.00	6.00	8.00	...
	Kansas City	15.00	7.00	8.00	...
Orizaba, Mex.	El Paso	8.50	1.00	3.00	...
	Pueblo	12.50	4.00	9.00	...
	Denver	14.00	5.50	7.50	...
	Kansas City	14.50	8.00	8.00	...
Torres, Mex.	El Paso	8.00	0.50	2.50	...
	Pueblo	11.50	3.00	5.00	...
	Denver	12.00	4.00	8.00	...
	Kansas City	13.00	5.00	7.00	...
Hermosillo, Mex.	El Paso	8.00	0.50	1.50	19.00
	Pueblo	10.00	1.50	3.50	...
	Denver	11.50	2.00	4.00	...
	Kansas City	12.00	5.00	15.50	...
Pesquera, Mex.	El Paso	8.00	0.50	1.50	...
	Pueblo	10.00	1.50	3.50	...
	Denver	11.50	2.00	4.00	...
	Kansas City	12.00	5.00	15.50	...
Querobabi, Mex.	El Paso	7.00	0.50	1.50	...
	Pueblo	10.00	1.50	3.50	...
	Denver	11.50	2.00	4.00	...
	Kansas City	11.50	3.00	15.00	...
Magdalena, Mex.	El Paso	6.50	0.50	1.50	...
	Pueblo	8.00	1.00	3.00	...
	Denver	11.00	12.50	14.50	...
	Kansas City	11.50	13.00	15.00	...
Imuris, Mex.	El Paso	6.00	1.50	5.50	...
	Pueblo	8.50	11.00	13.00	...
	Denver	11.00	12.50	14.50	...
	Kansas City	11.50	13.00	15.00	...
Nogales, A. T.	El Paso	5.50	0.50	8.50	...
	Pueblo	8.00	10.50	12.50	15.20
	Denver	10.50	12.00	14.00	17.20
	Kansas City	11.00	12.50	14.50	18.50
Calabasas, A. T.	El Paso	5.50	0.50	8.50	...
	Pueblo	8.00	10.00	12.00	15.20
	Denver	10.50	12.00	14.00	17.20
	Kansas City	11.00	12.50	14.50	18.50
Sanford, A. T.	El Paso	5.50	0.50	8.50	...
	Pueblo	8.00	9.50	11.50	15.00
	Denver	9.50	11.00	13.00	18.20
	Kansas City	10.00	11.50	13.50	15.50
Crittenden, A. T.	El Paso	4.70	0.50	7.70	...
	Pueblo	8.00	8.50	11.50	14.50
	Denver	9.50	11.00	13.00	18.00
	Kansas City	10.00	11.50	13.50	15.50
Fairbank, A. T.	El Paso	4.40	0.50	6.50	...
	Pueblo	8.00	9.50	11.50	14.50
	Denver	9.50	11.00	13.00	18.00
	Kansas City	10.00	11.50	13.50	15.50
Tucson, A. T.	El Paso	4.25	0.50	6.50	...
	Pueblo	8.00	10.50	12.50	14.50
	Denver	10.50	12.00	14.00	17.20
	Kansas City	11.00	12.50	14.50	18.50
Lordsburg, N. M.	El Paso	4.00	0.50	6.50	...
	Pueblo	8.00	10.00	12.00	15.00
	Denver	10.50	12.00	14.00	17.20
	Kansas City	11.00	12.50	14.50	18.50
Silver City, N. M.	El Paso	3.80	0.50	6.50	...
	Pueblo	8.00	9.50	11.50	14.50
	Denver	9.50	11.00	13.00	18.00
	Kansas City	10.00	11.50	13.50	15.50
Hudson, N. M.	El Paso	3.60	0.50	6.50	...
	Pueblo	8.00	9.50	11.50	14.50
	Denver	9.50	11.00	13.00	18.00
	Kansas City	10.00	11.50	13.50	15.50
Deming, N. M.	El Paso	3.25	0.50	6.50	...
	Pueblo	8.00	9.50	11.50	14.50
	Denver	9.50	11.00	13.00	18.00
	Kansas City	10.00	11.50	13.50	15.50
Florida and Lake Valley	El Paso	2.20	0.50	3.00	5.00
	Pueblo	6.00	7.50	8.50	10.50
	Denver	7.50	8.00	10.50	12.50
	Kansas City	8.00	8.50	11.50	13.50
Nutt, N. M.	El Paso	2.20	0.50	3.00	4.50
	Pueblo	6.00	7.00	8.00	10.50
	Denver	7.50	8.00	10.50	12.50
	Kansas City	8.00	8.50	11.50	13.50
El Paso, N. M.	El Paso	2.00	0.50	3.00	4.50
	Pueblo	6.00	7.50	8.50	11.50
	Denver	7.50	8.00	11.00	12.50
	Kansas City	8.00	8.50	11.50	13.50
Las Cruces, N. M.	El Paso	1.50	0.50	3.00	4.50
	Pueblo	6.00	7.50	8.50	11.50
	Denver	7.50	8.00	11.00	12.50
	Kansas City	8.00	8.50	11.50	13.50
Riocon, N. M.	El Paso	2.00	0.50	3.00	4.50
	Pueblo	6.00	7.00	8.00	10.50
	Denver	7.50	8.00	10.50	12.50
	Kansas City	8.00	8.50	11.50	13.50

## ATLANTIC &amp; PACIFIC RAILROAD

## Rates on Copper or Zinc Ore to Canon City.

Taking Effect July 1st, 1891.—So far as rates on Copper or Zinc Ores are concerned, Canon City, Col., will be considered as common with Pueblo; in other words the rates shown in Tariff as applying on shipments of Ores to Pueblo, will also apply on shipments of Copper or Zinc Ore to Canon City.

In the absence of positive information as to the value of Ores, Ore Concentrates, or Base Metal, Agents will bill at rates sufficiently high to protect the Company. These rates can be corrected when evidence of actual value is produced.

The market price at destination, to be verified by assays made

FROM	TO	Car Loads in dollars and per ton of 2,000 lbs.			
		Ore Concentrator	Lead Bullion, Copper Matte, Bar and Black Copper, value not to exceed \$50 per ton.	Lead Bullion, Copper Matte, Bar and Black Copper, value not to exceed \$50 per ton.	Lead Bullion, Copper Matte, Bar and Black Copper, value not to exceed \$50 per ton.
Engle, N. M.	El Paso	2.20	2.80	8.50	8.50
Crocker, " "	Pueblo	7.50	8.50	10.50	11.50
	Denver	7.00	8.50	10.50	11.50
	Kansas City	7.50	8.50	11.00	11.50
Lava	El Paso	2.20	2.80	8.50	8.50
	Pueblo	6.50	7.50	10.50	11.50
	Denver	6.00	7.50	10.50	11.50
	Kansas City	7.20	8.50	11.50	12.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
Carthage, " "	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
A. T. & S. F. R. R.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10.50	11.50
El Paso, N. M.	El Paso	2.40	3.20	8.50	8.50
	Pueblo	6.20	8.50	10.50	11.50
	Denver	6.70	8.20	10.50	11.50
	Kansas City	7.20	8.50	10	

# THE PUEBLO Smelting and Refining Company, PUEBLO, COLORADO.

## BUYERS OF

Gold, Silver, Lead and Copper Ores,  
Copper Matte and Bullion.

## Refiners of Gold, Silver, Lead and Copper.

Manufacturers of Bar and Pig Lead, Lead Pipe, Antimonial Lead, Copper Ingots,  
Granulated Test Leads and Litharge.

Pays Highest Prices for all classes of Ores.

Especial Attention to Sampling by most Approved Processes.

Quick Returns on all Consignments.

## CHAS. B. BOOTHE & CO.

— Dealers in —

Engines, Boilers, Pumps, Shafting Hangers, Pulleys, Belting, Lubricating Oils,

**Engineering Supplies** **Mining Hoists** **Irrigating, On Well,**

**IRON and WOODWORKING Machinery**

— Of All Kinds —

Electrical Machinery and Apparatus.

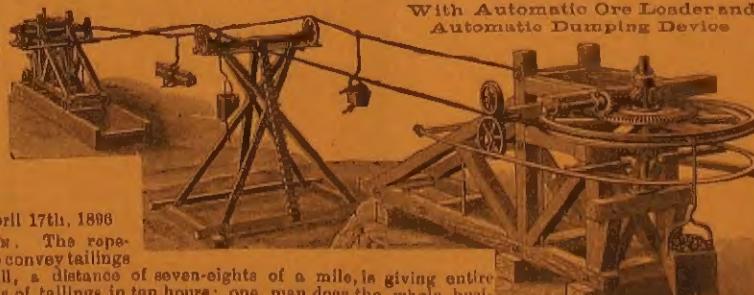
We invite an inspection of our goods at the New Store,

126-128 S. Los Angeles Street,

Los Angeles, Cal.

## VULCAN ROPEWAY

\*  
For Conveying  
Ore,  
Cordwood,  
Etc.  
\*



With Automatic Ore Loader and  
Automatic Dumping Device

EMPIRE, NEVADA, April 17th, 1898

Vulcan Iron Works.—GENTLEMEN. The rope-way furnished by your Company to convey tailings from Morgan Mill to Mexican Mill, a distance of seven-eights of a mile, is giving entire satisfaction. We transport 200 tons of tailings in ten hours; one man does the whole business, including elevating tailings from hopper in the ground, operating Vulcan self-loader, and attending to the ropeway generally. The self-dumper requires no attention whatever. The Vulcan loader I consider the best feature in the whole Ropeway, making it possible for one man to load 200 tons in ten hours.

Yours very truly, J. P. WOODBURY, Supt.

**VULCAN IRON WORKS,** Manufacturers of Mining Machinery,  
SAN FRANCISCO CAL.

### Babbit Metal

Eclipse, guaranteed best Babbit Made.  
COPPER FOR AMALGAMATING PLATES.  
Brassers Sheet Copper.  
BATTERY ZINCS, ROOFING TERNE PLATE  
Pacific Metal Works,  
137-139 FIRST ST., SAN FRANCISCO, CAL.

CLARENCE HERSEY,  
Assayer and Chemist,  
(Established 1879)  
LEADVILLE, COLORADO

Samples by Mail or Express Re-  
ceive Prompt Attention

SPECIMEN ASSAY PRICES:  
Gold silver and lead, \$1.00; any two of the  
above, 75¢; any one of above, 50¢; copper analy-  
sis, \$1; platinum, nickel or tin, \$3.00.  
Write for full price list and mailing envelopes.

# Fraser & Chalmers

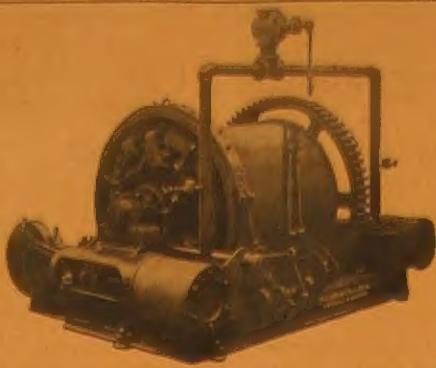
CHICAGO, ILL.

Have Brought Out a New Line of  
MEDIUM SIZES

## STEAM HOISTING ENGINES



These are designed with great care by engineers familiar with the best previous practice, and knowing just what is wanted to render satisfactory service on a mine. Do you want such service? Then buy one of these improved machines.



## OUR SPECIAL LINES OF MANUFACTURE

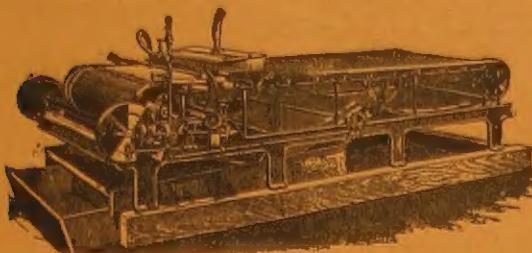
On which we would be glad to quote you:  
STAMP MILLS, SMELTING FURNACES,  
CYANIDE PLANTS, ORE CRUSHERS,  
TRUE VANNER CONCENTRATORS,  
RIEDLER AIR COMPRESSORS AND PUMPS,  
OTTO AERIAL TRAMWAYS,  
SHOES, DIES, CAMS,  
ROLLS AND JIGS.

Qualified by a Quarter Century of Experience to render you the best of service we invite your inquiries and patronage.

Fraser & Chalmers,

CITY OF MEXICO  
DENVER, COLO.  
SALT LAKE CITY, UTAH  
BROADWAY, N.Y.

# JOSHUA HENDY MACHINE WORKS



Hendy Improved Triumph Concentrator

Nos. 38 to 44 Fremont St., San Francisco

DEALERS IN AND MANUFACTURERS OF  
All the Latest Improved

Mining, Sawmilling, Pumping, Smelting and  
Electrical Machinery, Engines and Boilers,  
and Mining Supplies of all kinds.

Manufacturers of the HENDY IMPROVED TWO-STAMP MILL.

# BAKER IRON WORKS

LOS ANGELES, CALIFORNIA

Mining and Milling Machinery, Atlas Engines and Boilers, Worthington Steam Pumps

Water Works Machinery  
A SPECIALTY

# RISDON IRON WORKS

Office and Works, Cor. Beale and Howard Sts., San Francisco

— MANUFACTURERS OF —

Johnston Concentrators

Risdon Improved Concentrators, Frue Type

Bryan Patent Roller Quartz Mills

Evans' Patent Hydraulic Gravel Elevators

Risdon Ore Feeders, 'Challenge' Type  
Air Compressors

Mining, Milling, Pumping  
and Hoisting Plants,

Risdon Pat. Water Wheels,

"PELTON TYPE"

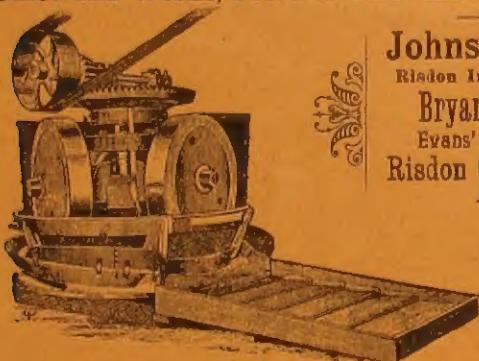
KNIGHT WATER WHEELS

GOLD AND SILVER STAMP MILLS

Catalogues and Prices on Application

Risdon Hammered Steel Shoes and Dies

Cable Address, "Risdon's," San Francisco



## IMPROVED HYDRAULIC GIANT

The above cut illustrates the improved form of Hydraulic Giant, in which the Center Bolt is dispensed with, which was so liable to catch trash. Prices and catalogues of our specialties sent free on application.

# PARKE & LACY COMPANY

21 and 23 Fremont St., San Francisco, Cal.



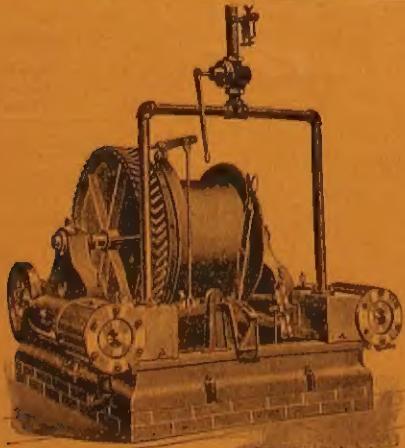
# MINING MACHINERY

SOLE AGENTS FOR  
THE INGERSOLL-SERGEANT AIR COMPRESSORS AND ROCK DRILLS.

SOLE LICENSEE FOR THE MANUFACTURE AND SALE OF

THE ROPP STRAIGHT LINE FURNACE, For Roasting, Chlorinating and Desulphurizing Ores.

WE CARRY IN STOCK



Horizontal, Vertical and Portable Engines and Boilers. Rock Breakers, Cornish Rolls, Pulverizers, Concentrators, Ore Feeders. Hoisting Engines, Horse Power Hoisting Whims, Water Wheels, Steam Pumps, Ore Cars, Wire Rope, Ore Buckets, Water Buckets, Skips. Blowers and Exhaust Fans, Shafting and Pulleys. Belting, Oils and Mine Supplies. **Manganese Steel Shoes** and Dies

Estimates furnished for Complete Plants for Hoisting Works, Smelters, Concentrating and Stamp Mills.